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ADDRESSES AND ORIGINAL ARTICLES

THE B.I.P.P. METHOD OF TREATMENT OF ACUTE OSTEITIS*

BY JAMES H. SAINT, M.D. Durh., F.R.C.S. Eng., F.A.C.S.

CONSULTING SURGEON TO THE THOMAS KNIGHT MEMORIAL HOSPITAL, BLYTH, AND SENIOR SURGICAL REGISTRAR AT THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE

(*Concluded from p. 1217*)

Discussion of the Various Modern Methods

While most methods of treatment of acute osteitis consist of some form of operative attack on the bony focus with or without some special type of general treatment of the blood condition present, there appears to have been only one surgeon who had the courage to ignore entirely the bony focus. This was the late H. Tyrrell-Gray, who employed intravenous mercuric chloride together with anti-staphylococcal or anti-streptococcal serum, according to which organism was found on blood culture. Although he did not mention the number of cases he had so treated, he stated in 1934 that in the last five years he had lost only one case, and that there had been no case of sequestration. He admitted that in desperate cases there was a great deal of anxiety for the surgeon who wished to hold rigidly to these principles of treatment, and while lack of courage alone to face such an anxiety will probably always prevent this form of treatment from becoming popular, the principle of disregarding the bony focus does not appear to be sound. As mentioned previously, before infection of the bone occurs—that is, before the case actually becomes one of acute osteitis—there is present a mild form of septicæmia, but the more severe systemic infection that forms part of the clinical picture of acute osteitis becomes evident only *after* the development of the bony focus and must be due to the passage of toxins or organisms into the blood stream from that focus, a fact that does not appear to be generally recognised and one that calls at once for the immediate treatment of the bone involved. Furthermore, the absence of sequestration, recorded by Tyrrell-Gray, after total disregard of the bony focus appears extraordinary, for since pus is usually present it seems unlikely that sequestration can be prevented unless it is removed or at the least some means is provided for its escape. Since the Bipp method of treatment is soundly based on the pathology present, and will save life, shorten the illness, prevent sequestrum formation, and lead to a minimum of morbidity, it is considered that this method provides sufficient reasons for not having to face the anxiety that Tyrrell-Gray mentioned.

The value of antiserum and immuno-transfusion therapy remains questionable, for the results obtained by those who advise and apparently practise them do not appear to recommend their use. It is best, however, that an open mind be kept on this subject

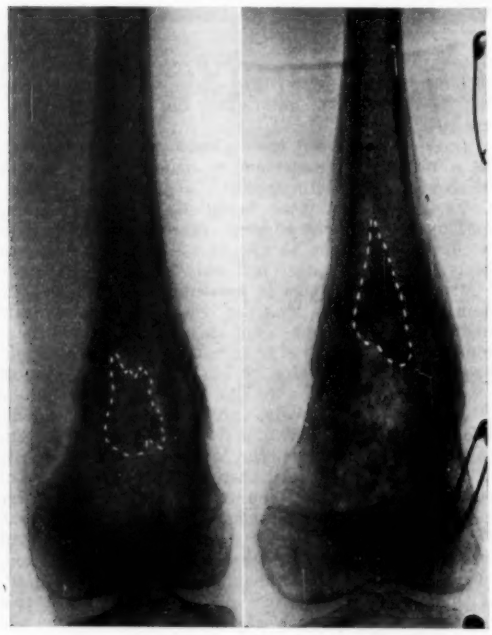
It is considered that, of general measures, by far the most important consists in putting the patient on a balcony where he is in the open air and at the same time can obtain as much sunshine as may be available, while nourishing food and plenty of fluids are a sine qua non.

OPERATIONS

The operative procedures employed in this disease will be discussed in order from the least to the most radical.

Incision of the soft tissues down to the bone.—This, as a method of treatment, is usually mentioned in connexion with subperiosteal abscess, the opening and drainage of this being the only treatment employed. Such an abscess, representing as it does a complication due to spread of infection from the bony focus, indicates not only delay in diagnosis but suggests that pus is present in the bone. This being so, it seems that to ignore that pus means inadequate treatment, since its presence in the bone must always be a factor threatening either necrosis, because of compression of blood-vessels, or a more severe blood infection by its escape into the blood stream through the wide, valveless veins in the bone. While both Starr (1922) and Holman (1934) favour this form of treatment, the latter actually advocates delay in treatment until there is definite evidence of pus formation, on the grounds that such conservative measures give the patient a chance to develop some degree of immunity. He states that if the patient is seriously ill and the local signs not well-marked, then expectant treatment should be instituted. With this I would agree if I had ever found this combination but, in my experience, patients who are seriously ill have the local signs only too well-marked, indicative of a delay in diagnosis that may cost the patient his life. It also shows that the patient's serious plight is due not to the original mild septicæmia that made possible the development of the bony focus but to the severe septicæmia caused through reinfection of the blood stream from the bony focus, this forming a potent reason why that focus should be attacked without delay and why early diagnosis is essential to obtain the best results. Holman lost 3 cases out of 31, a mortality of only 9·7 per cent., but he states that most of his cases had to have one or more secondary operations for the removal of sequestra, thus indicating how prolonged the illness may be that results from this form of treatment. Mitchell (1928) has pointed out that operations for the removal of sequestra are by no means devoid of risk and that prolonged illness lessens the chance of a good functional result. To show that a case treated by this method can heal without sequestrum formation Starr gives as an example a case of acute osteitis of the lower end of the humerus that healed completely in three weeks after operation, but unfortunately neither the description of the case nor the radiograms accompanying it would prevent it from having been one not of acute osteitis of the lower end of the humerus but of suppuration of the epitrochlear gland. In a later publication Starr (1927) describes "a typical case" treated by this method. The patient was admitted in May, 1922, and had two subsequent operations for the removal of sequestra in September and in December, 1923, the wound having discharged during the whole of this time and not healing until two months after the removal of the second sequestrum. A recurrent abscess was opened in March, 1924, and healed quickly after drainage was established. Although Starr states that some time after healing examination of the patient showed that there was no deformity and that the function of the leg was normal, yet it is difficult to be enthusiastic about a method of

* Based on a Hunterian lecture delivered at the Royal College of Surgeons of England on Feb. 5th.



A B

FIG. 6A.—Acute osteitis of lower end of femur treated by incision of the soft tissues. Radiogram three months after operation, to show great thickening of bone and sequestrum.

FIG. 6B.—Same case seven months after operation. The sequestrum has been removed and another has formed. See text and compare with Fig. 11.

treatment resulting in such a protracted post-operative history.

As illustrating a common result of this method of treatment, Fig. 6 is of interest. The case was one of acute osteitis of the lower end of the femur treated by incision and drainage of a subperiosteal abscess. The radiogram Fig. 6A was taken three months after operation and shows a sequestrum surrounded by recent periosteal bone of great thickness. This was removed and seven months after the first operation—the wound never having ceased to discharge copiously—a further radiogram (Fig. 6B) showed that another sequestrum had formed, accompanied by still greater thickening of the femur. So that, after being ill for this length of time, the patient is now faced with the necessity of at least one more operation, will probably have a discharging sinus for several more months, and even at this stage he has a completely ankylosed knee-joint.

Another case that came under my notice was one of acute osteitis of the lower end of the fibula which was treated by this method, a subperiosteal abscess being opened and drained. The temperature continued to swing (Fig. 7) and the condition of the patient gave rise to much anxiety. Treatment by the Bipp method was then undertaken with a striking result. The chart shows how the temperature came down, pain was abolished, and the patient immediately improved, being quite a different person after his second operation. No further operation was necessary for the removal of sequestra.

It seems that the institution of the Bipp method of treatment at least aborted what would otherwise have been a lengthy illness and may have prevented an even more serious result.

Drilling the bone.—Since Starr published his well-known paper in 1922, this method of treatment has been widely adopted, although he himself appears to reserve it for cases where no subperiosteal abscess is present. It is one method of bone-drainage therapy and, as such, does not appear to be adequate. Even inadequate drainage, however, is better than none at all. It will probably have been the experience of most surgeons that drill holes become occluded almost immediately with purulent debris or granulations and that it is expecting too much of them to drain efficiently even if the dressing, as advocated by Sir John Fraser (1934), consists of gauze soaked in a fluid which theoretically keeps the discharge in solution as it tracks up through the holes in the bone. With this method of treatment the illness is also liable to be prolonged, for judging from the writings of both Starr and Fraser it is not uncommon for sequestration to take place. Starr (1927), for example, reports 207 cases and states that, of these, 26 healed completely without sequestration. These figures mean that sequestra formed in no less than 88 of every 100 cases, a huge percentage and one that compares very unfavourably with that reported above of the Bipp method. Simple trephining of the bone, sometimes carried out, appears to be very little more efficient as a method of drainage than that of multiple drill holes.

While discussing this method of treatment, the following case of acute osteitis of the lower end of the femur is interesting.

When operation was performed a large subperiosteal abscess was found; two large (¼ in.) drill holes were made in the bone but no pus was found; gauze drainage was provided and the wound left open. The temperature chart of this case is shown in Fig. 8. A few days after operation the remittent type of temperature indicated a purulent focus that was either not draining or doing so inadequately, while the thigh had become much swollen. The treatment of this case by the Bipp method was undertaken 12 days after the first operation. The wound at this time was about 2 in. wide and at operation both drill holes were found plugged with inspissated pus. Guttering of the bone revealed the cancellous tissue of the distal 3 in. of the diaphysis to consist almost entirely of pus. Two weeks later the Bipped gauze was removed and the cavity in the bone filled with a pedicled muscle graft from the vastus externus. The rise in temperature

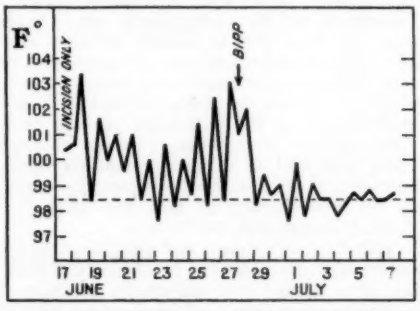


FIG. 7.—Temperature chart of case of acute osteitis of lower end of fibula treated first by incision of soft tissues and later by Bipp method.

midway between the times of the last two operations was due to the development of a subcutaneous pyæmic abscess near the left axilla. After the last operation there were two rises of temperature which were not explained, for the patient did not complain of any pain or malaise and examination of the wound and urine showed both to be satisfactory.

Guttering of the bone.—This procedure appears to have been brought into disrepute largely through the false impressions about it appearing from time to time, these indicating either a lack of appreciation of its proper use or excessive zeal on the part of the operator. Platt (1928) states that upon the conception, now proved erroneous by the work of Starr, that infection extends along the interior of the bone pari passu with the subperiosteal spread, the treatment of acute osteitis by the gutter operation was based. While this may be true, it is pointed out at once that the basis of this operation, as used in the Bipp method, has nothing to do with the question of subperiosteal versus internal spread of infection, but has for its foundation the pathological fact that the infection of the bone begins as a small focus which can and should be removed and that the most efficient way in which this can be done is by the use of the gutter operation. Platt further states that where a long gutter has to be made owing to extensive spread of infection, this will imperil the viability of the shaft as a whole, that it must tend to add to the amount of necrosis already determined by vascular obliteration, and that in bones with a considerable subcutaneous surface the gutter has the disadvantage of leaving an avascular adherent scar. Such anti-gutter propaganda, well summarised by Platt, has gained much credence and done a great deal to injure the reputation of this operation. In reply to it I would say that the first two statements have not been borne out by my personal experience, and that the third describes a condition which can be largely avoided. In 3 of my cases of acute osteitis a gutter

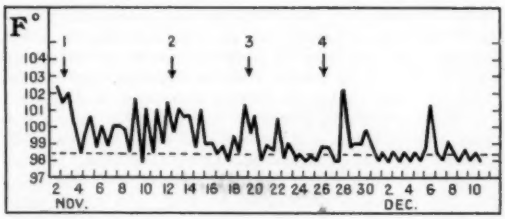


FIG. 8.—Temperature chart of case of acute osteitis of lower end of femur treated first by drilling of bone and later by Bipp method. See text.

over 7 in. long, necessitating opening into the medullary cavity, had to be made in order to reach the limit of the spread of infection; in none of these cases was the viability of the rest of the shaft impaired and there was no sequestrum formation. Where a long gutter has to be made in a bone with a considerable subcutaneous surface, if the cavity is allowed to fill up by granulation tissue then an adherent avascular scar will form (Fig. 5), but by using a pedicled muscle graft or free fat graft, as described previously, a satisfactory scar will be obtained (Fig. 10). Fraser (1934) states that he has abandoned the gutter operation because it did not appear to afford more efficient drainage than that provided by the method of multiple drill holes, while the trauma necessarily lessened the reaction and encouraged sequestrum formation. With the first statement I am unable to agree, having seen several cases similar to that described in the last paragraph, while my answer to the second is to be found in the nearly complete absence of sequestration in the present series of cases.

It would be well, at this point, to emphasise certain features which must be borne in mind when performing the gutter operation as used in the Bipp method of treatment. In the first place, the size of the gutter should be such as to permit of the removal of the infected tissue and no greater. Hence, if a gutter only 1 in. long is sufficient for this purpose, no further increase in its size is necessary or justifiable. There seems no doubt that, in times past, many gutters have been made indiscriminately without

FIG. 9.—Same case as in Fig. 8. Wound one month after the institution of Bipp treatment. It is healed except for two small areas from which there is a little discharge.

FIG. 10.—Acute osteitis of upper end of tibia. Wound three weeks after filling of cavity with free fat grafts. Wound healed by first intention. Compare with Fig. 5.

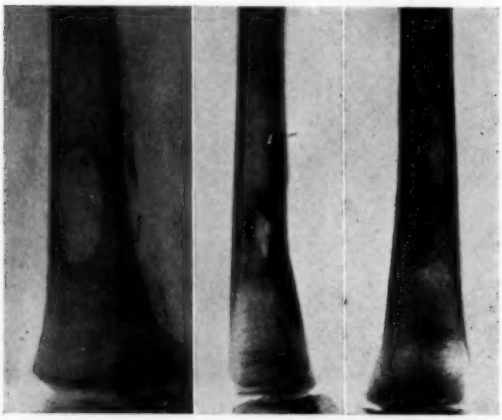
any regard to the size of the infected focus, with consequent infection of healthy tissue and that this accounts in no small measure for the bad results obtained. Secondly, the idea that the gutter operation is synonymous with the opening up of the medullary cavity is an appalling misconception that must be corrected, for to do this unnecessarily is asking for trouble and at the same time it indicates ignorance of both the fundamental pathology on which the operation is based and of the technique of its performance.

Furthermore, it should be pointed out that acceptance of Starr's contributions to the pathology of acute osteitis in no way contra-indicates the performance of the gutter operation, provided this is done in the manner already described and not indiscriminately. The essential difference between the Starr and the Bipp methods of treatment is that while the former seeks to drain the bony focus of infection, it is the aim of the latter to remove the focus. The advantages to be gained by removal as opposed to drainage have already been discussed, and ample proof of their practical significance is demonstrated by the excellent results obtained in the present series of cases.

Fig. 11 illustrates the results obtained by the Bipp method. They are radiograms from a case of acute osteitis of the lower end of the femur taken one month, six months, and fourteen months after operation. The case is one referred to previously under the heading "Length of stay in hospital," the wound being allowed to heal by granulation and the patient leaving hospital 75 days after his admission with the wound completely healed. The cavity, of moderate size, formed by the guttering of the bone is well shown in Fig. 11A. At the end of six months (Fig. 11 B) it is seen to be much smaller, while after fourteen months (Fig. 11 C) it has been

completely obliterated by sclerosed bony tissue, the structure of the bone itself being almost normal. No sequestrum formation occurred and there has been no thickening due to the formation of new periosteal bone. These radiograms should be compared with those in Fig. 6.

Winnett-Orr method of treatment.—This is placed under a separate heading because, owing to Orr's



A B C

FIG. 11.—Case of acute osteitis of lower end of femur treated by Bipp method. Radiograms taken one month, six months, and fourteen months after operation. Note absence of bony thickening, gradual obliteration of cavity, and restoration of bony structure almost to normal. See text and compare with Fig. 6.

publications (1927) it has become known by his name and seems to have been accorded the status of one which apparently differs from any other. Since, however, it consists of the gutter operation, the treatment of the wound with alcohol followed by iodine, the packing of the wound with vaselined gauze, and the immobilisation of the affected part, its similarity to the Bipp method of treatment becomes at once apparent. At the time, towards the end of the late war, when Orr was formulating his method of treatment, the Bipp method was already established and widely practised in the British Armies. While the principles of this method are the same as those governing the Bipp method—namely, the removal of the bony focus of infection, the use of an antiseptic and immobilisation, and it has the same advantage of obviating the necessity for frequent dressings—yet it is different in one or two important details. In the first place, the iodine as used by Orr will be absorbed in a very short time and no further supply will be available under his method of treatment. The use of Bipp, on the other hand, results in a continuous supply of nascent iodine to the tissues as long as the paste is present in the wound. Secondly, anyone who has had experience of the Orr method need not be reminded of the offensive smell which develops and which makes its use so objectionable. It will be seen, therefore, that the Bipp method of treatment possesses definite advantages over the Orr method in that it is cleaner, more pleasant to use, and is a more adequate means of arresting the spread of infection.

Diaphysectomy.—Of this operation I have had no personal experience. Mitchell (1928) reports a series of 13 cases with only 1 death, which indicates that the operation need not be associated with a forbidding fatality-rate, although he does not mention which bones were treated in this manner. Apart from the radical nature of the operation, one objection to it that will always carry much weight is the lack of guarantee of regeneration, the partial or complete failure of which in most of the long bones would lead to considerable deformity and disability. In the rare advanced case in which the diaphysis is found lying loose under the periosteum it could easily be removed but with its removal there would be taken away the best means of ensuring the essential thick involucrum, for the presence of necrotic bone acts as a stimulant to the formation of new bone by the periosteum. The fibula is the only long bone where the question of regeneration does not assume such paramount importance, and four cases of successful total diaphysectomy for acute osteitis of this bone have been reported by Hamilton Bailey (1929). It is felt, however, in view of the results that can be obtained by the more conservative Bipp method of treatment, that diaphysectomy appears to be an unnecessarily radical procedure.

Carrel-Dakin solution.—One cannot omit from a discussion of the various methods of treatment of acute osteitis the mention of Carrel-Dakin solution, since many bony cavities, the result of the gutter operation, are treated with this antiseptic. It has the advantage of being a more powerful antiseptic than Bipp, but it is very soluble, the effect being so transitory that it is necessary to renew it at frequent intervals. To ensure this renewal special apparatus is necessary, this in its turn requiring attention; the dressings are continually wet, sometimes giving rise to severe irritation of the skin surrounding the wound unless precautions are adopted, and some individuals have a decided distaste for its pungent odour. Bipp, though less powerful, is able to ensure a continuous supply of nascent iodine without requiring renewal for days or even weeks, no special apparatus is necessary for its application, there is usually little or no discharge, and there is no associated smell to upset the patient or his attendants, these features, in my opinion, representing distinct advantages rendering the use of Bipp preferable to that of Carrel-Dakin solution.

Summary and Conclusions

Acute osteitis is a serious disease commonly associated with a high mortality and much subsequent morbidity.

The term "osteitis" is used as meaning the inflammation of any or all of the constituent parts of the bone, and such terms as "osteomyelitis" and "periostitis" are considered superfluous as well as having the disadvantage that they tend to denote separate diseases.

It is important to realise the fact that the disease begins as a small, delimited focus of infection in the cancellous tissue of the metaphysis, for this focus can be completely removed, and that its removal constitutes the rational treatment. While the development of the bony focus of infection presupposes a septicæmia to be already present, this septicæmia must be mild since it gives rise to no symptoms as such. The general symptoms that point to a bloodstream infection appear only *after* the development of the bony focus. In consequence of this sequence of pathological events it is suggested that the severe systemic infection seen in acute osteitis is due to a reinfection of the blood stream from the bony focus, a view that calls for the removal of that focus at the earliest possible moment.

Stress is laid on the necessity for diagnosis in the early stage of the disease—that is, before complications, due to the spread of infection, have occurred. The triad of a *continuous pyrexia*, *intense pain* of sudden onset over the metaphysis of a long bone, and exquisite *tenderness* on palpation of the same region, associated with a *polymorphonuclear leucocytosis*, are the clinical features that appear early and establish the diagnosis.

A description is given of the characteristics of bismuth-iodoform-paraffin paste, including its formula, bacteriological and chemical actions.

The principles governing the Bipp method of treatment of acute osteitis and the technique of its performance are described, followed by a synopsis of 21 personal cases treated by this method during the past six years. Two cases died, giving a fatality-rate of 9·5 per cent., one of the lowest on record. Complications were few and the average period of hospitalisation short. The late results concerning growth and function were excellent, and a striking feature was the almost complete absence of sequestration. One case is described of recurrence three years after the initial illness.

The various methods of treatment of acute osteitis in use at the present time are discussed in some detail.

In the Bipp method of treatment of acute osteitis the surgeon has at his disposal one for which the following claims are made:—

(1) It has a low mortality-rate.

(2) The technique is relatively simple.

(3) It avoids the necessity for frequent dressings.

(4) The dressings themselves are painless, a consideration of no small moment in children.

(5) It enables the surgeon to exercise personal supervision of the case instead of delegating this important duty to other people, as when frequent dressings are necessary.

(6) It is clean to use and there is no unpleasant associated odour.

(7) No special apparatus is required.

(8) Little or no sequestration occurs, thus avoiding the formation of chronic sinuses and the necessity for secondary operations.

(9) Wounds heal in a comparatively short time, thus avoiding a lengthy period of hospitalisation and the interference with function so liable to follow a protracted illness involving a limb.

(10) The late results concerning growth and function are excellent.

It is considered that the advantages, enumerated above, to be gained through the use of this method of treatment of acute osteitis merit its wider recognition and adoption.

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LEFT INFRAMAMMARY PAIN

A METABOLIC INVESTIGATION

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THAT pain in the centre of the chest or over the left mammary region should suggest heart disease is not unnatural. Indeed many such pains are undoubtedly due to heart disease. It is usually easy to recognise, for example, the pain of effort angina with its relation to exertion, and the prolonged pain of coronary thrombosis. Similarly pain due to acute pericardial disease or to aneurysm is likely to be traced to its true source by careful investigation. There is, however, another variety of pain over the heart which is commonly called left inframammary pain. It is rather sharply distinguished from the others by its situation roughly over the apex-beat, its independence of exertion, and its good prognosis. In these patients the pain is often the solitary suggestion of heart disease, and on examination none of the ordinary evidence of heart disease, such as cardiac enlargement, arrhythmia, valvular disease, or high blood pressure is found. The subjects of such pain are usually women, sufferers from chronic anxiety, imagining that they have heart trouble, and indeed, as the pain is over the place where the heart may be felt beating, what more natural supposition than that it is somehow associated with the heart? Yet because of the absence of features of the ordinary recognised heart disease, because the pain is unlike those known to be associated with cardiac pathology, and because the psychological state of the patient is sometimes abnormal, this symptom of left mammary pain has been consistently dismissed by physicians as "functional."

It may be profitable to consider more closely what is meant by this term. It may mean that symptoms are present and related to disturbances of physiological function which are perhaps not recognisable by the methods at our disposal, and which at any rate are not sufficiently gross to be classed as pathological; on the other hand, it may mean that symptoms are present, that these are unrelated to morbid or even physiological deviations, and that the source of the symptoms is psychogenic. The term functional is all too frequently used by clinicians at the present day to embrace both of these groups—the truly functional and the psychogenic. The use of the word "functional" in connexion with left inframammary pain insidiously suggests to the physician some inferiority in moral fibre in his patient, and a lack of significance in the complaint; he therefore feels both unworthy of his attention and the patient is sent away assured of a sound heart and the prospect of a long life. Yet the pain persists and has somehow or other to be borne. Is it not possible that the patient was originally right in her fears, that there is something wrong with the heart, and that our methods of examination are so crude as only to discover the grosser forms of disease? May it not be that some disturbance of nutrition as opposed to structural damage is responsible for the production of pain, and that there exists in these patients some mechanism correlating their anxious state with metabolic disturbance and pain?

That there is some relationship between a person's psychological structure and the disease to which he is liable there can be little doubt, as witness the observations of Draper (1924), although it is unknown whether that relationship is endocrine or biochemical. There is the excitable temperament of the rheumatic child, the anxious pessimistic man who develops peptic ulcer, and the cheerful optimistic woman who gets gall-stones. These associations are so common that they cannot be fortuitous but the links remain to be discovered.

It was in this frame of mind that we began to study patients afflicted with left inframammary pain, subjecting them to clinical, biochemical, radiological, and electrocardiographic investigations, and attempting to find some abnormality that might indicate the link between physical and mental fatigue and the symptom-complex of left inframammary pain. In this paper we record the results of our investigations and suggest a working hypothesis of the mechanism of the syndrome.

THE CLINICAL FEATURES

Pain below the left breast is a symptom, common enough in women, which has been recognised for many years and which does not respond to the methods of treatment usually adopted. It differs absolutely from angina pectoris by its lack of immediate relation to exertion. It is situated in its greatest intensity in the neighbourhood of the apex-beat. Frequently the pain is accompanied by liability to palpitation and suspirious (sighing) respiration as described by Herz (1910). Associated pain and hyperæsthesia about the angle of the left scapula was first observed by Parkinson (1919). The pain may come on at any time, but is specially apt to occur after physical or mental fatigue. Any exertion that involves stooping or stretching upward with the arms seems likely to produce or aggravate the pain. Characteristically it is a dull ache, but it may be paroxysmal and of extreme severity as described by Gallavardin (1928); the differential diagnosis from spasmodic angina may then present difficulty. Left inframammary pain is not directly relieved by rest. Other symptoms commonly associated are headaches, depression, trembling, and manifestations of vasomotor instability such as sweating and sensations of heat and cold. In consequence of these the pain is regarded by many physicians as neurotic in origin. In times past it was generally regarded as due to heart disease, and indeed its accompanying phenomena of dyspnœa and palpitations served to emphasise this conception. This pain does commonly occur in heart disease and one of us (Smith 1929) has shown that pain at and below the left breast is a frequent manifestation in congestive heart failure, tending to become more severe with enlargement of the heart and tachycardia. Nevertheless, left inframammary pain occurs much more frequently in patients who have none of the accepted evidence of heart disease, and Baker (1930), in an analysis of 332 consecutive patients at the National Heart Hospital, found this pain complained of in 42·3 per cent. of cases with no other evidence of heart disease, and she compiled similar figures in a further series of 266 consecutive patients. Thus a patient with this pain is more likely to have a "normal" heart than not.

EXPERIMENTAL GROUP

The series investigated in the present work comprised 26 patients (all female except 2), who gave left inframammary pain as the main, sometimes the sole, complaint, and who on careful examination by the usual clinical and cardiographic methods showed no evidence of any recognised form of heart disease. Their ages ranged from 20 to 54. In each instance the patient was admitted to hospital and a very full history was elicited with special reference to the nature, site, radiation and duration of the pain, the associated symptoms, the menstrual cycle, and the presence or absence of factors pointing to anxiety, fatigue, or toxæmia.

Radiological and electrocardiographic examinations were made in each case. An estimation of the fasting blood-sugar was made, that is to say, the patient took no food from the evening before until the blood was taken at 7 A.M. Sugar-tolerance curves were made in nearly every case, while determination of alkali reserve and the basal metabolic rate by the British Benedict method were made in the majority. Repeated urine tests for acetone bodies were carried out.

Although there are available numbers of statistics relating to the range of the normal fasting blood-sugar, it was thought best to study a small series of controls. Accordingly, estimations of fasting blood-sugar were made in a group of 11 young women in sound health awaiting various minor orthopædic operations. Such a group reproduced the condition of hospitalisation of the experimental series and at the same time comprised a number of subjects free from any symptoms or constitutional maladies.

RESULTS

Fasting blood-sugar.—Out of 26 patients—

17	showed	80 mg	per 100 c.cm.	or less
11	,,	70 mg.	,, ,,	,,
8	,,	65 mg.	,, ,,	,,

In a control series the fasting blood-sugars in 11 "normal" female patients had the following values: 98, 89, 87, 85, 85, 82, 80, 79, 75, 73, 71.

Sugar-tolerance curves.—These were obtained in 23 patients. In 9 a peak of 140 mg. per 100 c.cm. or less was found, and in 6 of these the peak was 130 mg. per 100 c.cm. or less. Three curves reached a level of 200 or more. In one of these (peak 230) glycosuria was discovered; in the other two no glycosuria.

Alkali reserve.—Estimations were made in 9 patients and were within normal limits, ranging from 50–77 vols. of CO_2 per cent.

Basal metabolic rate.—Investigation of 22 patients, in one of whom it was not possible to obtain a figure,

In 4	patients	it	was	between −5% and +5%
In 8	,,	,,	,,	+6% and +25%
In 7	,,	,,	,,	−6% and −25%

In the remaining two patients values of +28 and +30 were obtained. These patients and some others were regarded as unsatisfactory subjects for the test.

Urine.—Consistently normal in every patient except those two in whom glycosuria was found in association with a reduced sugar-tolerance curve.

Body-weight.—The patients were with few exceptions spare in build and under-weight rather than over-weight. This was specially the case in the younger age-groups (20–30).

X ray.—Antero-posterior teleradiograms did not disclose cardiac enlargement or deformity in any case. Generally, the heart was found to be of rather small size.

Electrocardiograms.—The following were regarded as findings that would ordinarily be grouped among normal tracings but which occurred with such frequency among these patients that they have received special attention: (i) T_1 not greater than P_1 in amplitude; (ii) T_2 not greater than P_2 in amplitude; (iii) diphasic T_2 or T_3 with or without (i), or (ii), or (i) and (ii). One or more of these conditions were fulfilled in 16 out of 24 patients. The Figure shows four typical electrocardiograms.

ASSOCIATED FACTORS

(i) Blood pressures ranged within normal limits.
(ii) Menstrual disturbances or derangements existed

in 14 out of 24 female patients. In 3 of these patients the menopause was in progress (ages between 48 and 54).

(iii) Fatigue in the history—work or special circumstances—in 10.

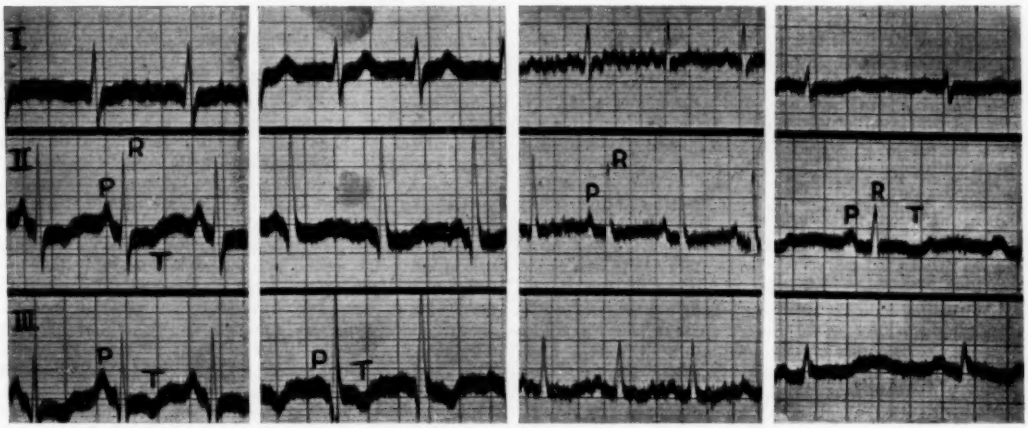
(iv) Anxiety in 18.

(v) Toxic factors such as excess of tea, coffee, or tobacco did not appear to be of any importance.

(vi) Indigestion was conspicuous by its absence in the histories.

DISCUSSION OF RESULTS

It will be seen from the foregoing results that the subjects of left inframammary pain show deviations from the normal in two principal directions: first, an abnormality in the sugar metabolism was found in a high proportion of cases, and secondly, particular types of electrocardiogram were found with considerable frequency.



Typical electrocardiograms of patients subject to left mammary pain, but having no organic disease. Left to right: female aged 33; female aged 28; male aged 43; female aged 45.

Sugar metabolism.—No agreement regarding the normal variations of the fasting blood-sugar and the level below which hypoglycæmia may be said to exist is to be found among the various authorities.

Sigwald (1932) regards 90 mg. per 100 c.cm. as the lower limit of the normal, while Peters and Van Slyke 1931 give 70–120 mg. as the normal range. Graham (1933) and Bourne and Stone (1929) suggest 80–120 mg., while Wright (1936) gives 80–100 mg. Hawk (1931) claims that values below 90 mg. are abnormal, and Joslin (1935) names 100 mg. as the limiting low value. Wauchope (1933) says that 100 mg. is the normal, and that hypoglycæmic symptoms may appear at or below 80 mg. Sendrail and Planques (1927) after an extensive survey of the subject concluded that a reading of about 90 mg. or below constituted hypoglycæmia.

The discrepancy between these results depends to some extent upon the diversity of methods used for the estimations. Methods such as those of MacLean, and of Hagedorn and Jensen, give on an average readings which are 10–20 mg. lower than those which, like Folin and Wu, employ tungstic acid filtrates. Whether capillary or venous blood is examined is of practically no moment in fasting blood-sugar determinations.

In our present series of analyses MacLean's method has been used on capillary blood. Our previous experience of this procedure has indicated that the normal range of fasting blood-sugar is from 70 to 105 mg. per 100 c.cm. Thus the 11 cases taken for controls varied between 71 and 98 mg. per 100 c.cm. materially covering the normal range. Since in our experimental series there were 12 patients with a fasting blood of 70 mg. or less, it is seen that approximately half our group were hypoglycæmic, whether compared to our own standard of the normal or to the widest range of normal variation given by the authorities quoted above. At the same time the fasting blood-sugar in the remaining 14 of our patients fell largely into the lower half of the normal range. Sippe (1933) has found fasting blood-sugar values ranging from 65–77 mg. per 100 c.cm. in four patients complaining of left inframammary pain.

Departures from the normal were also found in the sugar tolerance. The curves in our patients tended to be low, and showed an unusually early peak, the estimation at the one-hour period being lower than at the half-hour stage. On the other hand, we discovered the presence of unsuspected glycosuria in one patient and indisputable hyperglycæmia in two others. It is generally accepted that derangement of sugar tolerance in either direction is the outcome of endocrine disease or dysfunction, although the nature of the mechanism is far from being thoroughly understood.

Electrocardiograms.—The special features of electrocardiograms taken from our patients related entirely to the ST segments or T-waves. The T-waves were found usually to be of less amplitude than the P-wave of the same lead, and were frequently diphasic or inverted (see Figure). Such changes as these have been recorded chiefly in relation to nutritional or toxic disturbances, and the frequency with which they were found in our series has led us to the view that they are here related in some way to the anomaly of sugar metabolism just described. Similar electrocardiographic variations have been found by Taterka (1929) in diabetic coma, by Smith and Hickling (1932) in diabetes. Wittgenstein and Mendel (1924) and Haynal (1925) have made similar observations in hypoglycæmia in diabetes, and a flattening of the T-waves has been demonstrated in starvation in children by McCullough (1920). It seems likely that the underlying factor in all these states is a nutritional disturbance of the heart muscle due either to a lack of sugar supply or an inability to metabolise sugar.

Comments.—From the foregoing considerations it is clear that there is a possible basis of relationship to connect the two principal abnormalities found in our investigation. A review of the personal history

in the experimental group brought out clearly facts which have already been established regarding the subjects of left inframammary pain. Fatigue and anxiety appeared to play an important part not only in the production of the syndrome, but also in determining the frequency and severity of the pain. When physical fatigue and emotional stress operated together, as for example in the nursing of a sick relative, the liability to the pain seemed to be especially great.

MECHANISM OF PRODUCTION

The states of anxiety and fatigue, predisposing to and aggravating the pain, are the outstanding associated factors in the syndrome of left inframammary pain. It must be considered whether there is any possible link to correlate mental or physical fatigue with the group of somatic symptoms which are the subject of the present investigation. Many of the physical manifestations of emotion are so much part of everyday life that except in extreme forms they arouse no comment; others are more subtle and may only be observed by the discerning eye; again, some are too slight to be detected by the observer, and it is in this last field of manifestations that explorations by biochemists and physiologists are beginning to bear fruit.

There can be no doubt that the influence of the emotions on the bodily functions is a profound one, and the literature of this subject has lately been exhaustively explored by Dunbar (1935). But it is upon the endocrine system particularly that emotions seem to exert their most direct effects. Thus Bram (1927) found that in 2842 out of 3343 patients with exophthalmic goitre a clear history of psychic trauma as a cause was obtained. Goodall and Rogers (1933) have made similar observations. The deleterious effects of anxiety upon the diabetic is universally recognised, and Cannon (1929) has found glycosuria at times of anxiety in normal animals and men. Again Williams (1912) has remarked upon the action of chronic fear which he believes to play a part in the genesis of hyperthyroidism and hypo-adrenalism; he has recorded cases in which prolonged stress has apparently led to Addison's disease and death, no other condition than suprarenal atrophy being found at autopsy. Marañon (1929) has reported three similar instances. It should be noted in this connexion that low blood-sugar and curves of increased sugar tolerance are the rule in Addison's disease. No record of associations between mental or physical stress and pituitary lesions has been disclosed in a search of the articles on the subject.

The substantial body of evidence indicating the concrete effects upon the bodily functions of emotional disturbances has led us to review our own findings in this light. The salient points in our problem were: (i) the existence of a group of symptoms of which left inframammary pain was the chief; (ii) the obvious rôle of physical or mental fatigue in producing or aggravating the syndrome; (iii) a condition in which the blood-sugar generally tended to fall to abnormally low fasting levels, and in which a state of increased sugar tolerance was found; and (iv) the prevalence among these patients of particular types of electrocardiogram. It seemed to us most likely that the endocrine system must be the intermediary factor here linking the mental state with the physical. Considering in turn the various endocrine organs, there was in the first place nothing in the literature or in our findings to suggest a pituitary anomaly. The thyroid had also to be rejected on several grounds; first, that in thyrotoxicosis a reduced sugar tolerance is found as opposed to the increased tolerance seen in the majority of our patients; secondly, our patients presented none of the signs of frank or even masked thyrotoxicosis; and thirdly the basal metabolic rate was found to present no significant deviations from the normal. The conclusion that no thyroid element operated in our patients was supported by the findings of Gallavardin (1935), who in a recent investigation of the comparable syndrome of nervous tachycardia found no evidence of abnormal thyroid function.

The thyroid and pituitary being thus excluded, it remains possible that alterations in fasting blood-sugar may relate either to pancreatic or suprarenal causes. Since the tendency of alteration is in the direction of increased sugar tolerance, the glandular derangement would be either in the direction of hyper-insulinism or hypo-adrenalism. As no evidence was forthcoming to suggest the presence of primary hyper-insulinism in our experimental group, we have been led to the hypothesis that in the subjects of left inframammary pain a relative hyper-insulinism frequently exists in association with a state of exhaustion or hypofunction of the suprarenal gland. We suggest that left inframammary pain arises in the heart as the cardiac expression of a metabolic derangement that affects the body as a whole. This metabolic derangement is envisaged as the consequence of endocrine dysfunction brought about by emotional or physical stress. It may be argued that if left inframammary pain is of this origin patients with hypoglycæmia should also be subject to this pain. It is true that precordial pain is not common in hypoglycæmia, but it does occur sometimes as mentioned by Sonne (1929) who also observed palpitation in 44 per cent. of cases. This author also refers to the fact that serious symptoms may relate to little fall in blood-sugar, while in other cases a sharp hypoglycæmia produces no symptoms. And even though left inframammary pain be related to defective bodily and cardiac nutrition it is not necessarily an invariable accompaniment any more than neuritis is to be found in every subject of diabetes. Moreover, the condition of our patients was not exactly comparable with insulin hypoglycæmia, since in the latter an actual hyper-insulinism exists as opposed to the suggested relative hyper-insulinism in left inframammary pain. It has been observed by Ernstene and Altschule (1931) that hypoglycæmia causes an increased load on the heart since the minute volume is increased during the condition; similar observations have been made by Chasanoff (1929). It seems likely that the explanation of exertional dyspnœa accompanying left inframammary pain lies in these facts.

SUMMARY

1. The syndrome frequently known as left inframammary pain is briefly described. Modern conceptions regarding the nature and source of this pain are discussed.

2. An account is given of an investigation into the clinical features and metabolism of 26 patients suffering from the left inframammary pain syndrome, but from no recognised organic disease in any system.

3. It is found that approximately half of the experimental group showed abnormally low fasting blood-sugar, even though the figure of 70 mg. per 100 c.cm. be taken as the lower limit of the normal. Sugar-tolerance curves often showed an increased tolerance, the curves reaching an early, and frequently low, peak. On the other hand, in two patients an unsuspected diabetes was brought to light, and in three others hyperglycæmia without glycosuria.

4. The electrocardiogram in the subject of left inframammary pain is found frequently to show certain features hitherto regarded as normal.

5. Examination of alkali reserve, basal metabolic rate, and heart size by radiography shows no abnormality.

6. The nature and origin of left inframammary pain are discussed. It is suggested that this pain is the cardiac expression of a metabolic derangement that affects the body as a whole. It is further suggested that this disturbance is related to an underlying endocrine imbalance.

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A NEW MACHINE FOR THE SELF-ADMINISTRATION OF GAS-AND-OXYGEN ANALGESIA IN LABOUR

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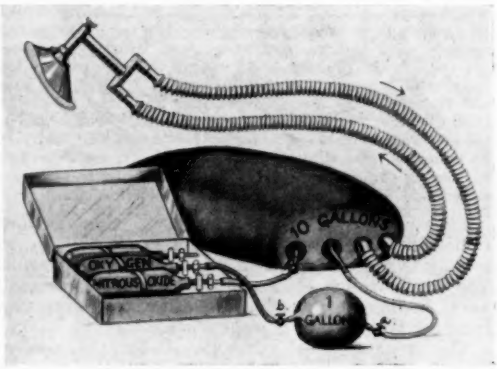
DURING the past few years many attempts have been made, in response to a growing demand from all sections of the community, to evolve some safe method of producing relief from pain during labour.

In domiciliary practice the majority of women go through the greater part of labour with no mitigation of pain. Most practitioners administer, during the second stage of labour, "intermittent chloroform anæsthesia." Nevertheless, this is not the stage at which the patient is most in need of relief. Observation and examination reveal that the most fatiguing and certainly the most painful part of labour is the latter part of the first stage—and it is at this stage that relief is demanded—the pains are increasing in intensity, and yet the patient feels that the presenting part is not progressing and she can do nothing to help herself. Prolonged intermittent chloroform anæsthesia is obviously, because of late dangers, inadvisable at this stage, and to this risk must be added the disadvantages that labour is delayed and the incidence of forceps delivery is increased. Administration of sedative drugs, because of their uncertainty of action, associated restlessness, and possible effect on the child has never been a popular method of relieving pain in domestic midwifery practice.

The community and the profession are indebted to Minnitt, who in 1934 devised an apparatus for the self-administration of nitrous oxide gas in air to produce analgesia. Although this has not proved entirely satisfactory in use, it has become obvious that future developments in this method should prove the ideal means of producing analgesia in labour. Administration of nitrous oxide gas and air or oxygen possesses advantages over all other methods in that while it relieves the pain of labour it is in no way dangerous to the mother or the child, nor does it prolong labour—the frequency of pains is not interfered with and the strength of contractions is not diminished. The incidence of instrumental interference therefore should not be increased.



During the past two years we have endeavoured to evolve an apparatus which would fulfil certain conditions which we considered essential if it were to be of value in general practice midwifery. It must (1) be safe and foolproof, (2) deliver a fixed proportion of nitrous oxide gas and oxygen, (3) be low in initial cost, (4) be low in running expenses, (5) be compact and easily portable, (6) have a minimum of moving parts to go out of order and have a mechanism which is easily understood, (7) if possible, be capable of producing some degree of analgesia at the moments of birth. After much experimenting, constructional and clinical, we have produced such an apparatus.

Essentially it consists of a rubber bag of 10 gallons capacity. Two tubes enter this, one leading direct from a nitrous oxide cylinder, and the other from an oxygen cylinder. In order to measure the oxygen, a 1 gal. rubber bag, which has a tap at either end, is connected up as in the Figure. Two corrugated rubber tubes lead from the bag to the face-piece—directional valves are fitted so that the gas mixture in the bag is inspired through one tube, and the expired breath is exhaled into the bag. A valve is incorporated in the face-piece in such a way that when the plunger, which is spring loaded, is depressed, gas is permitted to enter the face-piece from the bag and, when it is released, the flow of gas-and-oxygen is automatically stopped and air only is breathed.

METHOD

The procedure is as follows. All air in the bags is expressed by folding them flat, at the same time depressing the plunger on the face-piece. The tap (A)

proximal to the oxygen bag (capacity 1 gal.) is closed and the distal one (B) opened, and the bag then filled with oxygen. This small bag, which now contains 1 gal. of oxygen, is emptied into the reservoir by opening the proximal tap and squeezing the bag. The tap (A) is then closed. The reservoir, which now contains 1 gal. of oxygen, is then filled to capacity with nitrous oxide to a point just short of stretching the rubber. The tap between the cylinder and the reservoir is now closed. The reservoir now contains approximately 10 gal. of gas—90 per cent. nitrous oxide and 10 per cent. oxygen.

The apparatus is now ready for use. Whenever the approach of a pain is appreciated, the patient expires to the fullest extent, then placing the face-piece over her nose and mouth, presses the plunger valve and takes a long inspiration from the reservoir—the following expiration passes back into the reservoir. She continues in this manner until the contraction is over, when she releases her grip on the plunger and removes the face-piece. The apparatus is ready for the next pain. One filling may last from ½ to 2½ hours, depending upon the frequency of the pains. It will be observed that as time passes the reservoir tends to sag. Before it is completely emptied, its contents, now diluted with exhaled air, are expressed by folding the reservoir flatly and depressing the plunger as before. It is then refilled as in the beginning.

The concentration of nitrous oxide permits sufficient analgesia of rapid onset, and the 10 per cent. oxygen is sufficient to prevent anoxæmia. The concentration of carbon dioxide in the reservoir never becomes high enough to cause any divergence from the normal rate of respiration.

The apparatus is manipulated by the patient herself, an attendant being required from time to time to refill the bags.

If sufficient relief from pain is not obtained for the actual birth of the head, the nurse or medical attendant may, by applying the face-piece continuously with the plunger depressed, obtain adequate analgesia for this purpose. The same procedure will allow of episiotomy or insertion of perineal sutures.

Our experience has been that where the analgesia is begun early enough, the patient becomes so expert in the use of the apparatus and so assured of relief from pain that she frequently sleeps naturally between pains, only waking sufficiently to reapply the face-piece at the beginning of the next contraction.

This form of analgesia can be carried on indefinitely, one of our cases lasting over thirty hours with no ill effects.

RESULTS

In order that the degree of analgesia produced by this machine might be accurately estimated, we have adhered to certain standards throughout our investigations. (1) The cases here reported were delivered in one institution where certain nurses were instructed in the use of the machine or, in private practice, by ourselves. (2) In order that the actual relief from pain might be correctly assessed, no preliminary sedative drugs were administered in any case. (3) In each case a record was kept of the effects of the gas noted by the nurse in attendance, and also of the opinion expressed by the patient herself at the time of labour.

A total of 100 cases were treated. Of these 29 were not aware of the birth of the child, and voluntarily expressed surprised relief that the labour was concluded. There were 20 patients who were extremely nervous when the treatment began, and 12 of these became calm and controlled, coöperating readily shortly after they realised the effect of the gas; 8 of these 20 cases, however, proved unsatisfactory throughout because of a lack of self-control or an inability to obey the instructions for using the apparatus—it seemed noteworthy that none of these occurred in our private practice where coöperation was intelligent. After a very satisfactory analgesia in the first stage, 3 multiparæ preferred to dispense with the apparatus during the second stage on the plea that labour was being delayed, although there was no diminution in the force and frequency of the uterine contractions—this seemed to us an argument for the efficiency of the analgesia. The remaining 48 patients had a very good relief from pain although they felt the actual birth of the child. There were 6 cases of forceps delivery for reasons not associated with the analgesia—persistent occipito-posterior position and contracted pelvis—chloroform was administered in these cases for delivery.

There were no stillbirths in the series and no neonatal deaths, and in all the child cried vigorously at birth. At no time was cyanosis observed other than the discoloration which is normal in the downbearing of the second stage of labour.

COMPARISON WITH OTHER MACHINES

In 1935 a committee of the British College of Obstetricians and Gynæcologists reported on an investigation into the use of analgesics suitable for administration by midwives. The records of almost 4000 patients who received analgesia from the Minnitt apparatus (35 per cent. nitrous oxide in air) were considered. In 23 per cent. of these cases the analgesia was reported as either doubtful or unsatisfactory.

Chassar Moir (1937) has recently expressed his disappointment, which confirms our own experience, at the meagre benefits which this type of machine, delivering 35 per cent. nitrous oxide in air, confers, and has shown that the inefficient analgesia results from the inability of many women to inhale a sufficient amount of nitrous oxide before the full force of the uterine contraction is upon them. In his apparatus, pure nitrous oxide gas sufficient for two deep breaths is delivered from a reservoir. In the apparatus here described, 10 per cent. oxygen is added to nitrous oxide gas, and the patient is able to obtain sufficient analgesia for even the prolonged and severe uterine contractions which are typical of the second stage of labour, without fear of anoxæmia.

The apparatus is very moderate in price, light in weight (24 lb.), and can be used at a cost of from 3*d.* to 6*d.* per hour. No mechanical adjustments are necessary—the principle on which it operates is obviously simple. (Many nurses and practitioners have expressed to us their feeling of insecurity when working with complicated machines the mechanism of which they do not understand.)

SUMMARY

A new machine for obtaining analgesia by means of nitrous oxide gas and oxygen is described. It is cheap, easily portable, and foolproof in use.

A series of cases is described in which 92 per cent. obtained a satisfactory analgesia—in 29 per cent. a perfect analgesia.

Less than 10 per cent. proved unsuitable—a more or less irreducible minimum with a certain unintelligent and nervous type of patient who is always troublesome with any form of inhalational anæsthesia.

The apparatus is assembled and distributed by the British Oxygen Co., Ltd., Polmadie, Glasgow, and is known as the Tindal-Barr Analgesia Apparatus.

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CHEMOTHERAPY OF STREPTOCOCCAL INFECTIONS WITH *p*-BENZYLAMINO-BENZENE-SULPHONAMIDE

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DURING the past winter 150 cases of scarlet fever, 47 cases of erysipelas, and 18 cases with other types of streptococcal infection were treated with Proseptasine (*p*-benzylamino-benzene-sulphonamide), an ample supply of which was placed at our disposal by the makers, Messrs. May and Baker.

SCARLET FEVER

In the scarlet fever test group no antitoxic serum was given. As controls, 150 alternate cases were treated with serum when considered necessary (56 cases) and the remainder expectantly. The dose given was 0·75 to 6 g. per day according to age by mouth in tablet form, divided into four-hourly doses. The full dose was given for two days, and half the quantity for another two to four days according to the course of the illness. The maximum quantity given in all to any one patient was 22·5 g. The results are shown in the Table.

It will be observed that in the test series, 53 (35 per cent.) developed one or more of the complications tabulated, whilst 84 (56 per cent.) of the control cases showed some complications. This difference is statistically significant. The sum of the individual complications is almost identical, but the complications in the test series occurred in fewer patients. The mean duration of the primary fever from onset to termination was twelve hours longer in the test series. Since antitoxin was administered to a third of the control series, this might be expected, for antitoxic serum undoubtedly reduces pyrexia. Our results would suggest, therefore, that the drug has some effect on the invasive side of this streptococcal infection and the results might be better if the drug could be given earlier. If spaces such as nasal sinuses, the middle ear, or bone are infected, the organism is probably less accessible to the drug. Possibly a combination of drug and serum would be more effective, and this is now being investigated.

ERYSIPELAS

The results here were very striking. A series of 47 cases of erysipelas of varying severity, from mild to very severe, was treated with similar doses of the drug. The youngest patient was four months; three were 70, 81, and 87 respectively. In 31 cases the temperature was normal within twenty-four hours, in 12 within forty-eight hours, in 3 within seventy-two hours, and in 1 only did pyrexia continue until the fifth day. The spread of the disease was arrested within twenty-four hours in every case. Two developed relapses ten days after the primary attack, which responded at once to further doses of the drug. All the cases made satisfactory recoveries, even the aged ones.

OTHER STREPTOCOCCAL INFECTIONS

In 15 severe cases of *tonsillitis*, notified as diphtheria, there was recovery within forty-eight hours of treatment with the drug.

In one case of *puerperal sepsis*, showing signs of early involvement of the broad ligament, which gave a pure growth of hæmolytic streptococcus from the cervix, the temperature settled within eighteen hours and the patient made an uninterrupted convalescence with rapid resolution of the infiltrated broad ligament.

One very ill patient with *cellulitis* involving the fauces arising from an impacted wisdom tooth lost his fever within seventy-two hours and recovered.

In one case of influenzal pneumonia with a turbid *pleural effusion*, from which a pure growth of hæmolytic streptococci was cultured, the effusion dried up after two aspirations following the administration of the drug and the patient recovered. In our former experience, such effusions invariably became purulent and necessitated operation for cure.

TEST SERIES OF SCARLET FEVER CASES TREATED WITH PROSEPTASINE

Cases showing complications

CONTROL SERIES (56 CASES RECEIVED ANTITOXIC SERUM)

Cases showing complications

AGES	0–5	5–10	10–15	15–20	Over 20	All ages.	0–5	5–10	10–15	15–20	Over 20	All ages.
Cases	27	72	24	9	18	150	28	67	33	9	13	150
Cases with complications ..	12	25	8	2	6	53	14	44	16	4	6	84
Mean day of disease on admission	2·1	2·4	2·2	1·6	2·3	2·3	1·7	2·9	3·3	1·4	2·5	2·6
Mean duration of pyrexia after admission	3·2	3·6	2·8	3·1	3·2	3·3	3·0	2·2	2·2	3·4	3·3	2·5
Adenitis	9	17	2	1	—	29	10	8	6	2	1	27
Otitis	5	5	—	—	1	11	2	4	4	—	—	10
Secondary tonsillitis	2	2	1	1	3	9	1	—	2	2	3	8
Endocarditis	1	2	—	—	—	3	3	4	—	1	1	9
Rheumatism	—	—	1	—	2	3	—	2	4	2	2	10
Albuminuria	1	8	3	—	—	12	5	4	5	2	3	19
Nephritis *	—	3	2	1	—	6	—	4	1	—	—	5
Mastoiditis	—	1	—	—	—	1	—	1	—	—	—	1
Died	—	—	—	—	—	—	1†	1‡	—	—	—	2

* 1 case of nephritis developed uræmia.

† Abdominal case died after exploration.
‡ Died following nephritis.

TOXIC EFFECTS

One child with erysipelas developed a macular rash; two very fat women complained of nausea and vomited once; no case showed any cyanosis or clinical signs suggesting sulphæmoglobinæmia. It seems, therefore, that the drug produces few toxic symptoms in the doses we gave and is well borne at all ages.

SUMMARY

The administration of proseptasine to scarlet fever patients reduced the number of patients having complications from 56 per cent. in the control series to 35 per cent. The drug seems to affect chiefly the invasive stage and results might be better if it could be given earlier.

In erysipelas the spread of the disease was arrested in 24 hours in all of 47 cases. In 31 cases the temperature was normal within 24 hours and in a further 12 within 48 hours. A similar result was seen in other types of streptococcal infection.

SOME OBSERVATIONS ON A CASE OF PULMONARY ŒDEMA

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WE have made two observations on a patient with pulmonary œdema which seem so important that we are recording them now, as it may be long before we have the opportunity of making detailed investigations on another patient with this condition.

The patient, a woman aged 64, has been seen at intervals by one of us (G. G.) since 1925. In that year she developed the symptoms of a mild toxic goitre, and was treated by Sir Thomas Dunhill with rest and iodine. Glycosuria and hyperglycæmia were also present at that time, and were treated with dietetic restrictions and insulin. The symptoms abated, and after two to three years did not cause any further trouble. The diabetic condition improved greatly with insulin, and she was able to take 180 g. of carbohydrate without insulin in 1928. Since then the diabetic condition has become worse and in January, 1936, she needed 18+16 units for a diet containing 130 g. of carbohydrate. At that time she was complaining of lassitude and had a slight degree of pyrexia. No cause for this fever was discovered and the temperature gradually decreased and the symptoms abated. In March she was again feeling unwell with slight pyrexia, and then had an acute attack of *B. coli* pyelitis, which lasted for five weeks. An intravenous pyelogram showed that she had a large cyst of the kidney, which was thought to be congenital. The *B. coli* infection was at first treated with alkalis and later with mandelic acid; the symptoms were quickly relieved with mandelic acid but it was not until August that the urine was rendered sterile.

Her general health had greatly improved, but she was still easily tired, and was only up for about five hours in the day. She had occasionally noticed a little wheezing and tightness of the chest when falling asleep.

On Dec. 1st, 1936, she had a slight coryza, and on Dec. 4th at midnight a feeling of tightness of the chest. This was followed at once by an acute attack of pulmonary œdema. She became ashy grey in colour. P. 140, R. 36, B.P. 180/100. Many râles were heard over both lungs, but there was little expectoration. She was given at intervals injections of Asthmolysin 1 c.cm., atropine sulphate gr. 1/100, Coramine 2 c.cm., and atropine gr. 1/150. The acute attack lasted about two hours and she gradually recovered. She was seen two days later by Sir Maurice Cassidy, who agreed that the attack was one of acute pulmonary œdema. The electrocardiogram was quite normal. She was kept in bed for 4 weeks but was then allowed to resume her ordinary convalescent life. She still had a slight pyrexia (99–99·5° F.). Blood pressure was 160 to 180/80; hæmoglobin, 82 per cent.; colour-index, 0·7; red cells, 5,600,000; and white cells, 23,000.

On Feb. 6th, 1937, she had another acute attack which started suddenly at midnight. The respiration was 40, pulse 144. Many râles were heard all over the lungs and there was again little expectoration, but she vomited several times. She was given at intervals coramine 2 c.cm., morphine gr. 1/6, atropine gr. 1/100, coramine 2 c.cm., atropine gr. 1/150. The attack passed off in about 2 hours. She was very unwell the next day, vomiting several times and passing a great deal of sugar in the urine, and was seen by G. G. on this account. The following were the results of examinations made of the blood: sugar, 230 mg. per 100 c.cm.; urea, 52 mg. per 100 c.cm.; alkali reserve, 63·5 vols. (Dr. H. E. Archer).

The blood-urea had been estimated several times during the previous illness and was usually between 32 and 36 mg. per 100 c.cm. The rise to 52 mg. suggested that the kidney might have failed because of the acidæmia which was probably present during the acute attack of dyspnœa. As both the attacks started so suddenly the possibility of her being sensitive to some substance was considered. Her rooms were always full of flowers, but no unusual flower had been brought into the rooms in the last few days.

A week later the general condition was better. The blood-urea was 32 mg. per 100 c.cm. and the diabetic condition was under much better control with 22+23 units of insulin. The blood pressure was 170/80. The patient was allowed to get up after tea on this day, and while walking in her room complained of a tight sensation in her chest. She was put to bed at once and given, at 5.50 P.M., morphine gr. ¼, atropine gr. 1/50, adrenaline 0·5 c.cm. In spite of this treatment the symptoms developed rapidly, and when she was seen by R. B. at 6.5 P.M. was in great distress. She was given, at 6.5, coramine 1·7 c.cm.; at 6.20, morphine gr. 1/6, atropine gr. 1/100; at 7.10, atropine gr. 1/100. The blood pressure was 200/80, a rise of 30 mm. from the morning. The pulse-rate was 140 and feeble, and the respiration 46. Moist râles were heard all over both lungs. During the next one and a half hours she vomited two or three times, bringing up a good deal of fluid. Two hours after the onset she was seen by G. G. The attack was then passing off, although she was still very ill. The respiration was 40 and the pulse 140; moist râles were heard all over the lungs. Ten c.cm. of blood was collected at this stage for analysis. An injection of adrenaline 0·5 c.cm. was then given subcutaneously, after ascertaining that the point of the needle was not in a vein by first withdrawing the plunger of the syringe. Ten minutes later the breathing was quieter and she said she felt better. The blood pressure at this stage was 170/100, pulse-rate 144. Half an hour later another 0·5 c.cm. of adrenaline was injected, using the same precautions, and the condition continued to improve. An hour later she was well enough to be left although the pulse was still 120 and the blood pressure 170/80.

When the estimation of the blood-sugar was made that night it was noticed that the blood flowed up the pipette with difficulty. This condition had been observed before in a case of diabetic coma (Graham, Spooner, and Smith 1926) and a week previously in a case of severe vomiting after influenza (G. G.). The hæmoglobin was estimated at over 130 per cent. on a Sahli apparatus, and the next day by Dr. H. F. Brewer, using a standard Haldane apparatus, at 135 per cent. When the blood had stood for a while the amount of plasma was very small compared with the number of red cells, but a hæmatocrit estimation was not made. The alkali reserve was 49 vols.; blood-urea was 36 mg. per 100 c.cm., and blood-sugar 260 mg. per 100 c.cm. The hæmoglobin had been 82 per cent. in January and two days after the attack was 80 per cent.

DISCUSSION

The two observations to which we wish to draw attention are the rise in the blood pressure and the increase in the hæmoglobin percentage, as we believe they may throw light on the cause of the condition.

One hypothesis regarding the ætiology of pulmonary œdema is a failure of the left heart and this is supported by the experiments of Welch (1878). He showed that partial obstruction of the aorta caused œdema of the lungs. The rise of the blood pressure in the brachial artery in our case, and the statement by Hamman (1934) that the attacks are often preceded by, or at least accompanied by, a marked rise of blood pressure, a "so-called blood pressure crisis," shows that a failure of the left heart in the ordinary sense does not cause the attack. The high blood pressure might be associated with some obstruction distal to the brachial artery. Such an obstruction occurs in wound shock, but pulmonary œdema is not a feature of this state. This evidence suggests that the left ventricle and presumably the left auricle are not to blame.

The only structures between the lungs and the left auricle are the intra- and extra-pulmonary veins. A contraction of these veins somewhere between the lung capillaries and the left auricle would make the return of the blood to the left auricle very difficult, and would cause an outpouring of fluid into the alveoli of the lungs. All those who have made experiments on the pulmonary circulation of animals have found that any interference with the pulmonary veins leads to the early onset of œdema of the lungs. The outpouring of fluid into the lungs would deprive the blood of plasma and explain the rise in the percentage of hæmoglobin from 80 to 135 in the peripheral circulation in our case. The blood would become much more viscid and be more difficult to drive round the circulation, and cause a rise in the blood pressure at first. Another point in favour of this hypothesis is the improvement in the clinical condition which was noticed after the injection of adrenaline. This was given with the idea of relieving any spasm of the bronchi which might be present and thus easing the breathing. The improvement may have been due to another cause. In recent years many experiments have been made on the pulmonary circulation, but they are difficult to carry out and the results are not easy to interpret. Gaddum and Holtz (1933) made their observations on lungs which were not ventilated but were perfused at a constant pressure. Adrenaline caused an increase in the outflow from the lungs in five out of ten cases, and a decrease in two cases. Alcock, Berry, and Daly (1935), who ventilated the lungs, showed that a minimal effective dose of adrenaline generally caused an increase in the venous outflow, with little or no change in the pulmonary artery pressure. Larger doses tended to raise the pressure considerably, without causing a comparable increase in outflow.

We have recorded these observations in the hope that others who have the opportunity may make extended observations on this condition. If the following routine were adopted our hypothesis could easily be proved or disproved.

(1) An injection of morphine tartrate gr. ¼ should be given at once since all observers seem to agree on its value.

(2) The collection of 1 to 2 c.cm. of blood in an oxalate tube. This should be done as soon as possible, and repeated every 15 to 30 minutes until the attack ceases. The hæmoglobin, hæmatocrit value, red and white cells should be estimated in each sample.

(3) The estimation of the blood pressure at frequent intervals.

(4) The injection of adrenaline, 1 c.cm. subcutaneously. The plunger should always be withdrawn to make certain that the point of the needle is not in a vein.

If the attack is not very serious it will probably be sufficient to repeat the injection every 15 or 30 minutes until the attack is over. If the attack is very severe the dose should be increased to 2 c.cm. and perhaps given at more frequent intervals, but we have not sufficient data from our one case to determine the point.

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ACUTE ASCENDING FLACCID PARALYSIS

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CASES of acute ascending paralysis are sufficiently rare to merit individual publication. Moreover, differences exist between authorities as to the correct classification of these cases.

Landry in 1859 published a report of a patient in whom there was acute flaccid paralysis beginning in the periphery of the lower extremities, and which spread rapidly upwards, involving the arms, trunk, and respiratory muscles, death ensuing from respiratory failure; no objective sensory changes were present. Examination of the spinal cord and brain failed to reveal any gross abnormality, macroscopically or microscopically. The term Landry's paralysis has since then been used to describe such cases.

Giving the name of Landry's paralysis to all types of acute ascending paralysis of a lower motor neurone variety by some and its limited use by others has led to some confusion. Collier (1933) considers the distinction between Landry's paralysis and acute polyneuritis to be an artificial one, based on the presence or absence of objective sensory disturbance. He regards the sensory changes as an expression of the peculiar selective capacity of the poison, and points out the not uncommon case of polyneuritis with no objective alterations in sensation. Russell Brain (1933) similarly holds that Landry's paralysis and acute polyneuritis are identical. Drake (1935) accepts as Landry's paralysis any acute ascending paralysis of a lower motor neurone type, irrespective of the ætiology—syphilis, infectious diseases, poliomyelitis, &c.

According to Goldby (1930) there are three forms of this variety of paralysis. He has collected and tabulated in all 54 cases. In the first group he places those cases in which there is little or no febrile reaction and in which post-mortem examination reveals few if any changes. This group is almost exclusively confined to males in his series, and occurs usually during the third decade of life. Sphincter control is nearly always preserved and sensory changes are subjective; the ætiology is unknown. In the second group an acute paralysis of the lower motor neurone type ascends symmetrically on both sides of the body, as in the first group, but this subdivision is characterised by objective as well as subjective sensory changes, and post-mortem changes in the parenchymatous and interstitial tissue of the nervous system. Sphincter trouble is more common than in the first group, although the age-incidence is

much the same. An important feature is the general toxæmia present. Ætiologically this group is closely related to acute polyneuritis. The third group comprises those cases in which the post-mortem findings are very similar to those of poliomyelitis. In such cases the paralysis is preceded or accompanied by a febrile illness and clinically signs of increased intracranial pressure with meningeal irritation are present.

CASE REPORT

The following is an account of a fatal case of acute ascending paralysis in a girl of 14½ years.

The child was admitted at 8 P.M. on Oct. 15th, 1936, and died at 3 o'clock next morning. In infancy she had had chicken-pox, measles, and whooping-cough. She was an only child and still at school, where there were other children ill with "colds," and others absent on account of illness. She was perfectly well until her present condition. Her father and mother are alive and well. She had been well until 12 days before admission when she developed a headache over the frontal area. With this headache there was a sense of congestion in the nose, which however did not actually run. No sore-throat was complained of. She went to bed on the same day and the headache did not abate. A severe pain in the back of the neck began 2 days later; this was continuous but it disappeared on the day before admission. The headache also persisted and was present until the day before admission. Her lower limbs became weak 8 days after the beginning of the illness. This weakness increased until she was unable to move them. Next day her upper limbs became similarly affected and difficulty in breathing commenced. At no time was there any pain in the limbs. There had been no incontinence of urine or fæces, no rigors, diplopia, or convulsions. Insomnia had been severe.

On admission her temperature was 99·5° F., respirations 40, and pulse-rate 105. She was a well-developed and very intelligent child. She answered questions clearly and was able to give a lucid account of her condition. The face was flushed and the alæ nasi working markedly. The lips were cyanosed. Pulse regular in force and rhythm. Tongue coated.

Central nervous system.—Pupils equal, regular and central, reacting to light and accommodation. Vision and fields of vision unimpaired. The eyeballs move in all directions with no sign of muscle weakness or nystagmus. Corneal sensitivity and sensation in the face apparently normal. Some paresis in left lower face, but no actual paralysis. There was no difficulty in speaking or swallowing, and the palatal muscles moved well and equally on both sides. Tongue protruded in midline; jaw muscles unaffected. The muscles of the neck were paralysed and the patient was unable to move her neck in any direction at all. Considerable pain was elicited on passive flexion of the neck which was very rigid.

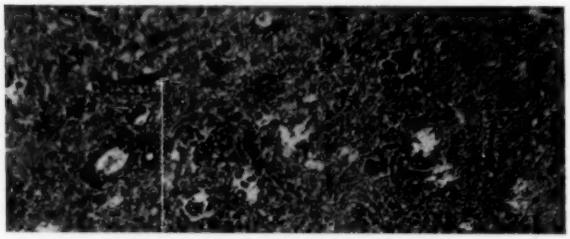

FIG. 1.—Lumbar cord: anterior horn (Lenhossek's stain), showing destruction of large anterior horn cells. (× 150.)

Both upper limbs were in an advanced stage of paralysis, the right more than the left. On the left, slight flexion and extension of fingers and wrists, and very limited extension of forearm were present. The right arm showed only slight flexion of the wrist. Absence of muscle tone in both limbs. Motor reflexes present and equal on both sides; no sensory loss.

There was no disturbance of objective sensation in the trunk or abdomen; the intercostal and abdominal muscles considerably weakened but not actually paralysed; abdominal reflexes present and equal on both sides. In the lower limbs there was loss of all movements except some degree of flexion and extension of the left foot and extension of the left knee. The right leg appeared completely paralysed. The muscles of the lower limbs were very hypotonic; reflexes present and equal on both sides; plantar responses flexor; no sensory loss in either leg.

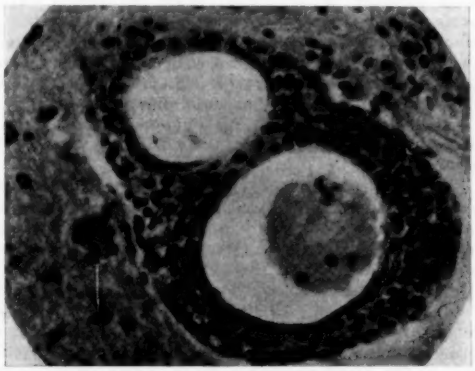

FIG. 2.—Dorsal cord: anterior horn (hæmatoxylin and eosin) showing perivascular cuffing and œdema and a collection of microglia cells. (× 520.)

Throat.—Generalised inflammation. Signs of left follicular tonsillitis.

Chest and abdomen.—Normal.

Lumbar puncture.—Clear, colourless fluid; pressure 130 mm. Pathological report on cerebro-spinal fluid:—

Total cells	14 per c.mm. (lymphocytes).
Globulin	A trace.
Total protein	0·025 per cent.
Chlorides	0·676 ,,
Sugar	Normal.
Lange's gold curve ..	0 0 1 2 2 2 0 0 0 0.

The stained specimen revealed no organisms and cultures remained sterile after 7 days.

Progress.—The dyspnœa and cyanosis became increasingly worse. Just before death the temperature became subnormal and the pulse-rate dropped to 78.

A post-mortem was performed and the cord and brain removed under aseptic precautions. Portions of the cord and brain at varying levels were submitted for pathological examination, while similar portions were dispatched to the Lister Institute of Preventive Medicine.

Pathological report.—To the naked eye the pial vessels were engorged, especially over the cord and brain-stem. The cord was soft and œdematous, but showed no gross softening. Portions of the cord were taken at all levels, and from the mid-brain and cortex, and were fixed in 75 per cent. alcohol and 10 per cent. formol-saline. The sections, stained with Lenhossek's stain and hæmatoxylin and van Gieson's, showed that no portion of the cord had escaped severe damage. The large anterior horn cells, particularly in the lumbar and cervical enlargements, were greatly reduced in number. Some were degenerated, with swelling of the cytoplasms, disappearance of Nissl's granules, and necrosis of the nucleus. Round about these degenerated nerve-cells there was considerable focal glial reaction. Cell nests of microglial cells, many of them rod-shaped, were visible in some of the sections.

Virchow-Robin spaces showed œdema and congestion, with perivascular "cuffing." In many areas, minute capillary hæmorrhages were visible about the vessels. In the lumbar region there was destruction to the central canal of the cord, and much congestion of the pia and nerve-roots (Figs. 1 and 2). The spleen and lymphatic tissues in the ileum were not examined.

Animal inoculation.—At the Lister Institute an emulsion was made of the material sent and 1 c.cm. injected into the brain of a monkey on Oct. 17th. The monkey remained well until Oct. 23rd when it seemed lethargic, and its movements became weak and incoördinated. Next day the condition was much worse and the animal was unable to eat. It remained huddled up and immobile in a corner and when disturbed only moved with great difficulty. On Oct. 26th it was very ill indeed and the weakness was even more pronounced. The temperature was well below normal. The animal was not expected to survive the day and so was killed. The brain and cord were removed and sectioned, but nothing abnormal was found beyond slight congestion of the meninges and brain surface. The other organs revealed no abnormal findings. The monkey's brain was then emulsified with portions of the cord at various levels. 1 c.cm. was injected directly into the brain of a second monkey, and 1 c.cm. of emulsion which had been filtered into the brain of a third. Neither injection produced any effect on either monkey, both being alive and well two months after the inoculation. Then into the brain of two rabbits was injected ½ c.cm. of the emulsion obtained from the brain and cord of the original monkey. Neither inoculation was subjected to previous filtration. One rabbit died and again autopsy failed to reveal anything abnormal in the central nervous system or other organs. The other rabbit remained unaffected. From the rabbit which died, the brain and cord were emulsified and injections were made intracerebrally into two other rabbits which are alive and well six weeks after inoculation.

COMMENTS

Dr. G. H. Eagles, who has kindly performed the inoculation work, states that the first monkey, which died, did not behave at all like a case of poliomyelitis. The restlessness, nervousness, and apprehension found in monkeys suffering from poliomyelitis were absent, as was the high-pitched cry which is so typical. There also was no flaccid paralysis in any of the monkey's limbs.

An inquiry was made whether there was any poliomyelitis in the district in which the girls' school and house were situated. The M.O.H. of that area had received one notification only during the whole of 1936.

The case is singular in some respects. A period extending over eight days, of generalised symptoms, preceded the onset of the paralysis. The throat showed definite inflammatory changes, and it is possible that this was the origin of the toxin—if toxin it was—that caused the changes in the central nervous system. Pathological changes were very considerable in the sections of the spinal cord of the girl, this being very unlike the usual negligible post-mortem findings of the cases described originally by Landry. Also the case does not fit in with a diagnosis of poliomyelitis because of the clinical picture and behaviour of the animals inoculated with an emulsion of the spinal cord and brain.

My thanks are due to Dr. Eagles for the inoculation work at the Lister Institute, and to Dr. Redvers Ironside for the pathological report and for his very kind advice.

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LYMPHATIC LEUKÆMIA WITH BILATERAL MAMMARY CHANGES

REPORT OF A CASE

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THE patient, an unmarried woman of 39, was first seen on April 7th, 1936, when she complained of a swelling in the left breast of three months' duration. It had gradually increased in size and was associated with neuralgic pain. There had been no discharge from the nipple, and no pain in the breasts during the menstrual periods.

Past history.—A small swelling, thought to be a cyst, had been removed from the right breast ten years previously. Apart from curettage for dysmenorrhœa in 1927, a "nervous breakdown" in 1935, and a tendency to winter coughs, the patient had always been healthy.

Clinical findings.—The left breast was seen to be larger than the right and a mass was visible in the upper quadrants. The nipple was not retracted. On palpation, a tumour about the size of a very large hen's egg was felt in the upper part of the breast, attached to skin but not to deep structures, and a hard gland was palpable in the left axilla. The chest was radiographed and no evidence of secondary growth was found, but there was some fibrosis of the right lung. The cardiovascular system was normal except for a soft apical murmur, and no other abnormality was found.

Operative findings.—On April 21st the patient was admitted for operation, and frozen section from a piece of the tumour showed infiltration of the breast tissue by a small round-celled growth, and much inflammatory change. Radical amputation was performed and the patient ultimately made a satisfactory recovery, although this was delayed by massive collapse of the left lung with marked cardiac displacement.

During her convalescence a *blood film* was examined on the advice of the pathologist, and this showed no abnormality, polymorphonuclear leucocytes being present in normal numbers.

The full *pathological report on the left breast* confirmed and amplified that on the frozen section (Fig. 1). The breast measured 8 in. × 6 in. × 2 in., and the nipple was not retracted. A tumour occupied the upper part throughout its whole thickness, extending from the nipple to the margin of the breast in all directions. This tumour was firm, smooth, and not encapsuled. A slice taken for section appeared to consist of solid growth without demarcation. Microscopically, large areas of the breast tissue were infiltrated with densely packed mononuclear cells, invading the lymphatics and growing in sheets along the planes of the connective tissue. The appearances suggested sarcoma, in view of the fact that many of the cells had oval nuclei and areas of unchanged breast alveoli were present (Fig. 2). On examining the axillary tissues, six glands were found, the largest being 1¼ in. × ¾ in. × 1 in. This showed lymphatic infiltration at one end by small round mononuclear cells (Fig. 3). Projection of this part of the gland showed the average size of the infiltrating cells to be 5·8 μ while that of the lymphocytes in the normal glandular tissue was 3·6 μ. These measurements are naturally smaller than would be found in fresh unfixed tissue.

SECOND ADMISSION

Four months after her discharge the patient returned complaining of pain in the right breast, and a swelling which she had noticed a fortnight previously.

Clinical findings and operation.—A very tender mass, 1 in. in diameter, was palpable in the upper outer quadrant of the right breast, and an enlarged gland was felt in the corresponding axilla. The patient was readmitted on Dec. 8th and apart from her looking very pale and thin, routine pre-operative examination revealed no abnormality. The lungs were clear and showed no signs

of the previous collapse. Local amputation of the breast was performed under Evipan followed by gas-and-oxygen.

Pathological report on right breast.—The size was 6 in. × 5 in. × 2¾ in., and firm areas of indefinite outline were irregularly distributed throughout the breast. Midway between the inner margin and the nipple and on a level with the nipple was a circular, hard area ¾ in. in diameter,

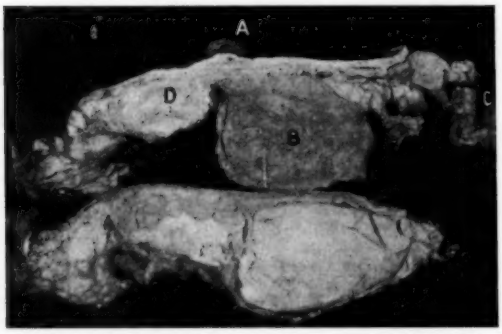

FIG. 1.—Left breast sliced from above downwards, showing extensive growth. A = nipple. B = growth. C = axillary tail. D = normal breast tissue.

which did not appear to be encapsuled. The alveolar tissue was fairly profuse, and immediately above the nipple was a small fibro-adenoma. There was a diffuse cellular infiltration in the outer part of the breast. Microscopically the hard nodule internal to the nipple consisted of an area of breast tissue infiltrated with tightly packed cells resembling large lymphocytes.

A full *blood count* was advised, and gave the following result: hæmoglobin, 42 per cent.; red cells, 2,184,000 per c.mm.; colour-index, 1·0; white cells, 17,800 per c.mm. (polymorphonuclears 0·5 per cent., lymphocytes 99·5 per cent., mostly large). No other types of white cell were seen among the 200 cells counted but several normoblasts and megaloblasts were present. Projection showed the diameter of the large lymphocytes to vary between 12·3μ and 15·7μ.

Further progress.—Two days after the operation the patient became extremely ill, with a pyrexia of 103°–104° F., rapid pulse, dyspnœa, and drowsiness. Examination showed collapse of the whole of the right lung and the left base. A leucocyte count was taken three days after the previous one and showed 20,400 cells per c.mm., again nearly all being large lymphocytes. The general condition rapidly deteriorated, and twelve days after the operation her blood picture showed what proved to be a terminal leucopenia, the white cell count being 2000 (polymorphonuclears 16 per cent., lymphocytes 83 per cent., hyalines 1 per cent.). The hæmoglobin had fallen to 28 per cent. The bases of both lungs gradually re-expanded but the patient died three days later.

POST-MORTEM FINDINGS

It was remarkable that the amount of lymphoid tissue in the whole body was extremely small. There were no enlarged glands palpable, and very few lymph nodes along the vessels. The mediastinal, aortic, and mesenteric glands were all unusually small, the largest found being ½ in. in diameter, and although the gall-bladder was distended with bile and the bile passages enlarged, there were no glands causing pressure on the common duct. The spleen was dark purple in colour, of firm consistence, and weighed 8½ oz. Section of this organ showed congestion and small patches of infiltration by cells resembling large lymphocytes. Films were made of the bone-marrow from a piece of rib and from the lower end of the femur. The former showed a few mononuclear cells and nucleated red corpuscles, and the latter showed fat only. Sections of liver and kidney showed no leukæmic infiltration.

DISCUSSION

This case presented some unexpected difficulties, for although the possibility of a leukæmic process was suspected after the first operation, the examination of a blood film failed to reveal its presence. There cannot have been any considerable increase in the number of white cells in the blood at that time, and the post-operative increase in polymorphonuclear cells was sufficient to mask any change in the lymphocytes that may have been present. A complete blood count might have led to a correct diagnosis. In this connexion it is noteworthy that Parsons (1936), in recording blood changes associated with experimental mouse sarcoma, says that before formation of the tumour no large increase in the leucocyte count was found, although a few abnormal cells appeared in the blood, but with the development of the sarcoma an increase in the total leucocytes and also a reversal of the relationship between the cells occurred. Cellular changes were also seen in the liver, spleen, and bone-marrow. The results suggested that a substance which stimulated the formation of certain types of leucocytes was present in the tumour.

In the case described, the second difficulty was to determine the site of the primary lesion. There was a definite hyperplasia of the axillary lymph glands, but here the lymphocytes were of normal size except in the connective tissue surrounding one end of the largest lymphatic gland, where they simulated malignant infiltration (Fig. 3). The monocytes found in the breast nodule were, however, large and pleomorphic, and pale areas resembling endothelial cells surrounded by closely packed, densely staining large lymphocytes were present. If these cells originated in the axillary glands and spread to the breast by retrograde lymph flow, then they underwent further development in that tissue.

Dawson (1936) refers to localised mammary involvement in blood diseases when discussing metastatic breast tumours. She describes a case in which a primary growth was found in the stomach and was associated with extensive lymph-vessel carcinosis in both breasts without the formation of obvious metastases. The path of invasion into the breast was thought to be by retrograde lymph flow from the axilla, after blockage of the supraclavicular glands from the primary tumour.

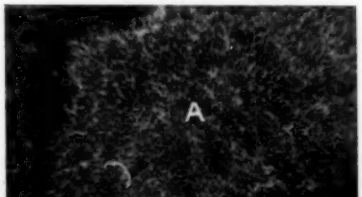

FIG. 2.—Section of breast. (× 100.) A = mononuclear infiltration. B = mononuclear infiltration in sheets along the connective-tissue planes.

In the case under discussion it was curious that in the first specimen the infiltration was strictly limited to the upper part of the breast, the tumour though not encapsuled having a sharp margin (Fig. 1). Even microscopically there was no lymphocytic infiltration in the lower half of the breast, nor could any excess of white cells be detected in the blood-vessels. Attempts to make a differential count failed through lack of material. In the second specimen,

however, the infiltration was very irregularly distributed throughout the whole breast. It would appear that the mammary glands of this patient were for some reason specially favourable sites for the proliferation of mononuclear cells. There must have

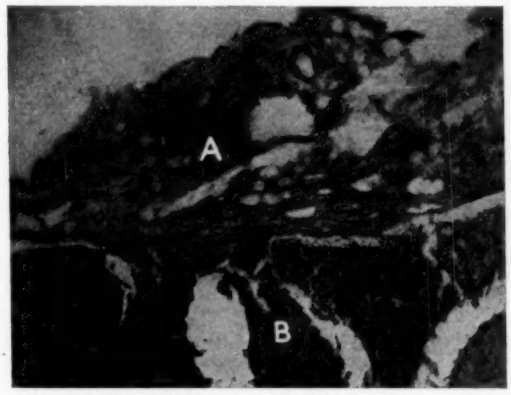

FIG. 3.—Section of largest gland, showing infiltration by large mononuclear cells (A). B = normal lymphatic tissue. (× 45.)

been some reason for the different distribution of the lesions on the two sides, but this has not been determined.

A study of the literature shows that breast nodules are not uncommonly associated with chloroma and myelogenic leukæmia but are rare with lymphatic leukæmia, the only really similar case being described by McWilliams and Hanes (1912).

Their patient was a married woman of 33 who was found to have a tumour in the right breast which on excision showed the microscopic appearances of lymphoma. Five months later the patient returned with further nodules in the same side, a mass in the other breast, and enlarged axillary glands. Microscopically the nodules showed a huge number of small cells with round or oval nuclei resembling lymphocytes, and the diagnosis of lymphosarcoma was made. A blood count gave: hæmoglobin, 30 per cent.; red cells, 3,000,000 per c.mm.; white cells, 117,000 (90 per cent. lymphocytes). The spleen became palpable shortly before death, but there was never any enlargement of the superficial lymph nodes except in the axillæ. At the post-mortem examination all the blood-forming tissue showed transformation to a tissue in which the predominating cell was the mononuclear leucocyte.

Whitby and Britton (1935) mention atypical forms of chloromata which may occur in any tissue, and be unassociated with green coloration. The blood picture in these cases may be of either the lymphatic or myeloid type.

Trevithick (1903) describes a case of chloroma in a girl of 13, with bilateral enlargement of cervical and axillary glands, and bluish, firm, globular tumours in both breasts. Later, multiple bony swellings appeared. No blood count was taken but a film revealed a leucocytosis which before death showed a rapid and large increase in mononuclear cells. Post-mortem examination showed multiple deposits of green material with the microscopic appearance of normal tissue invaded by densely packed mononuclear leucocytes. A rather similar case is described by Simon (1912) in a girl of 16 who had a four weeks' history of a rapidly growing tumour in the breast, attached to the skin. Radical amputation was performed, and the tumour found to be a chloroma. Subsequent blood counts showed a progressive anæmia, eosinophilia, and many myeloblasts. At the time of operation there was no lymphatic enlargement except in the axillary glands of the affected side, but there were generalised metastases before death. Post-mortem examination was not allowed.

Ziegler (1911) describes a pseudo leukæmic mammary granuloma, and mentions that deposits simulating growth may occur in any organ in cases of myelogenous or lymphatic leukæmia.

In conclusion, the experience gained by the case described suggests that it would be worth while to make a complete blood examination in any patient under 40 who presents herself with a breast tumour simulating malignancy.

SUMMARY

(1) A case of lymphatic leukæmia is described in which the only gross manifestations were in the breasts. (2) The tumour removed from the left breast had a pathological appearance simulating sarcoma, with dense infiltration by large mononuclear cells. (3) Five months later a similar tumour was removed from the right breast. (4) At the time of the first operation the blood film showed no abnormality but after the second operation 99·5 per cent. of the white cells were lymphocytes. (5) The post-mortem findings were remarkable in that there was extremely little lymphoid tissue present in the body.

My thanks are due to Miss E. Sylk, the surgeon in charge of the case, for her permission to publish these notes.

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REACTIVATION OF A TUBERCULOUS FOCUS BY MICRO-ORGANISMS OTHER THAN THE TUBERCLE BACILLUS

BY W. PAGEL, M.D. Berlin

(*From the Sims Woodhead Memorial Laboratory, Papworth Village Settlement, Cambridge*)

REACTIVATION of a tuberculous focus usually follows its liquefaction. The old view that this liquefaction was caused by a mixed infection, especially with staphylococci, streptococci, and pneumococci, has been almost entirely abandoned. The view was chiefly based on the observation of mixed infection in foci already liquefied—particularly in cavities. This is clear from the careful histological investigations of Sata (1899). The same has been pointed out recently by Kasper (1932) and Roulet (1936). But exact histological or bacteriological evidence of the liquefaction of a solid focus by these micro-organisms has never been brought forward.

The clinical significance of liquefaction as the phenomenon leading to active tuberculosis (Pagel 1931, 1936, Long 1935) may justify the report of a case in which there was clear evidence that micro-organisms other than the tubercle bacillus caused liquefaction of a tuberculous focus, even if such an event is exceptional.

CASE REPORT

A male cook aged 45. From March, 1933, to the end of April, 1936, tubercle bacilli were consistently found in the sputum. From then until his death in December, 1936, the sputum was negative. In March, 1936, the

sedimentation-rate (Westergren, 1 hour) was 17, in October it was 4. At the end of November lobar pneumonia of the right lower lobe developed, and he died from heart failure on Dec. 3rd, 1936.

A series of skiagrams taken between December, 1933, and November, 1936, showed disappearance of a cavity in the right upper lobe and shrinking of areas of infiltration in both upper lobes with formation of typical sharply defined "round foci." In addition small calcified nodules were scattered over the right lung.

Post-mortem examination.—Lobar pneumonia of the right lower lobe (grey hepatisation) with exudative pleurisy. Multiple encapsulated tuberculous round foci. In the right lower lobe in the centre of the pneumonic tissue there was one encapsulated caseous round focus the size of a small cherry; a small bronchus filled with purulent exudate was seen to enter the caseous focus, which was liquefied so that only half of its original volume remained as caseous material, the other half forming a small cavity (Fig. 1). Macroscopically it looked like a partially liquefied tuberculous focus. Histological examination confirmed this impression. It was a typical partially liquefied caseous round focus with a fibrotic capsule. A purulent exudate consisting of leucocytes with very numerous pneumococci covered the wall of the cavity and seemed to invade the caseous focus which, in its marginal parts, was being destroyed by the exudate and the pneumococci (Fig. 2). There were only a small number of tubercle bacilli in the centre and margins of the focus and in the leucocytic exudate invading the focus.

COMMENT

The above case shows the gradual healing by encapsulation of multiple tuberculous round areas of infiltration watched for three years. Death was due to a pneumococcal lobar pneumonia unrelated to the tuberculous process.

One of the encapsulated caseous round foci in the centre of the pneumonic lobe was partially liquefied. Macroscopically this looked like tuberculous liquefaction and therefore it was suspected that the pneumonic process was perhaps due to aspiration of liquefied caseous material and therefore a caseous rather than a pneumococcal pneumonia. Histological examination, however, clearly showed that it was a non-tuberculous pneumonia, and that even the liquefaction of the focus was not tuberculous in origin, that is, not due to an increase of tubercle bacilli within the focus.

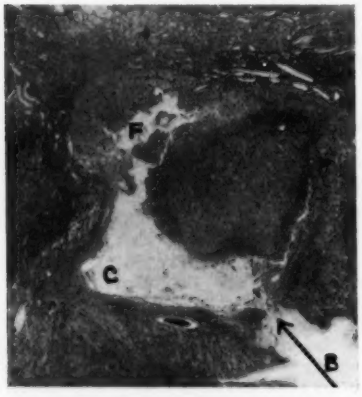

FIG. 1.—Histological appearance of the focus. (× 7.) B = bronchus. C = small cavity. F = liquefied parts of the caseous focus.

The small number of tubercle bacilli seen in the focus were apparently set free from the caseous material by its liquefaction. Moreover, there were no tubercle bacilli in the cavity produced by the partial liquefaction of the focus and in the purulent exudate of the bronchus entering the focus at one end, whereas innumerable pneumococci were found in these places. In tuberculous liquefaction, enormous numbers of tubercle bacilli are found. The small number of tubercle bacilli set free by the liquefaction of the focus shows that the presence of large numbers of tubercle bacilli in tuberculous liquefaction cannot merely be due to liberation of the bacilli by the liquefaction of the solid parts, which make it impossible to detect them. There is ample histological

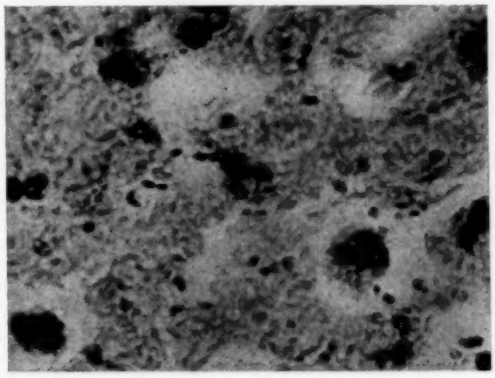

FIG. 2.—Marginal parts of the focus. (Microscope 1000, enlarged × 2.) Leucocytic infiltration rich in pneumococci.

proof that in this case the liquefaction of the caseous focus was due to its invasion by a leucocytic exudate rich in pneumococci; it was therefore the result of pneumococcal infection—a non-specific inflammation.

I can find no report of a similar case. Carl Weigert 50 years ago said that flaring up and generalisation of a tuberculous process following measles are not caused by weakening of the general resistance or by an alteration in the response of the organism to the tubercle bacillus due to the intercurrent diseases; but a non-specific inflammatory process in the lungs may involve the capsule of a caseous lymphatic gland, invade the latter and thereby liberate the tubercle bacilli enclosed in the caseous focus. The anatomical and histological findings of such an invasion of tuberculous foci by non-specific inflammatory processes have, however, hitherto not been described. More recently Bézançon, Delarue, and Vallet-Bellot mentioned that if an inflammatory process of sufficient activity occurs, an old lipiodol deposit trapped in the lung may be suddenly liberated and thus disappear; but these authors also do not provide anatomical evidence.

The value of the case described above does not therefore lie only in the evidence of liquefaction of a tuberculous focus due to micro-organisms other than the tubercle bacillus, but also in that it shows how quiescent foci may flare up after pneumonia. This is certainly one way in which active tuberculosis may follow a non-specific inflammation of the lungs.

SUMMARY

A case is described in which one of the tuberculous round areas of infiltration was found partially liquefied in the centre of a lobar pneumonia. Histological evidence showed this liquefaction to be due to an invasion of pneumococci into the caseous focus. Liquefaction and reactivation of a tuberculous focus can therefore be due to micro-organisms other than the tubercle bacillus.

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CLINICAL AND LABORATORY NOTES

CONTINUOUS VENOUS HUM IN BILHARZIAL CIRRHOSIS OF THE LIVER

By M. R. Kenawy, M.D. Cairo
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Cirrhosis of the liver is endemic in Egypt among the cultivator class. It is caused by infestation with bilharzia ova, usually of the *mansoni* type, and their deposition in the liver. In the last two years I have been able to collect 6 cases of bilharzial cirrhosis, with or without splenomegaly, in which a continuous venous hum could be easily heard over a localised area over the xiphoid process. The murmur has the following characters: (*a*) it is a continuous hum which increases in loudness during inspiration and decreases during expiration; (*b*) it is louder in the sitting or standing position than while the patient is recumbent; (*c*) it is localised and not propagated and not heard at the back; and (*d*) it is not associated with any cardiovascular abnormality. As there has been much controversy about the source of such a hum, I thought the following record might be helpful:

A male, aged 20, was admitted to hospital on July 29th, 1936, complaining of an abdominal swelling for a year. He gave a history of diarrhœa and terminal hæmaturia two years before. He was pale and was stunted in growth. The abdomen looked distended; the liver was enlarged three fingers-breadth in the mammary line and hard in consistence; the spleen was enlarged down to left iliac fossa. Nothing abnormal was detected in heart or lungs, and there was no free fluid in the abdominal cavity. Over the xiphoid process a continuous venous hum with the characters described above could be heard. The stools contained *Bilharzia mansoni* ova; the urine contained albumin and blood. Renal function normal. Wassermann reaction negative. A blood count showed: hæmoglobin 50 per cent., red cells 3,800,000, and white cells 3200 (polymorphs 75 per cent., lymphocytes 25 per cent.). Blood pressure 100/65. Sigmoidoscopic examination showed a slight granularity of the mucous membrane and nothing else abnormal. The patient was treated with iron and a full course of tartar emetic. On Sept. 23rd splenectomy was performed. Immediately after the operation and on the following days the hum had disappeared. He was discharged on Oct. 19th.

From my experience in the other 5 cases there is no relationship between the hum and the presence of ascites, nor had specific treatment with antimony (tartar emetic) any effect on the hum. The degree of anæmia and its further improvement under treatment also had no effect.

In the case recorded above the hum disappeared entirely after splenectomy. This suggests that during the removal of the spleen the source of the hum was also removed. Since the hum occurs in cases of cirrhosis of the liver without splenomegaly, it could not be assumed that the spleen was the actual source, and most probably it arose in some venous communication which was severed during the operative manipulations. The increased loudness of the murmur during inspiration and its greater loudness in the standing or sitting position, where the action of the diaphragm is more free and thus allows a greater rise of intra-abdominal pressure, afford further corroborative evidence. Its disappearance after splenectomy as well as its complete absence on auscultation of the back excludes the possibility of stenosis of the vena cava by "a perivenous hepatic fibrosis" such as Dr. J. L. Bates suggested in The Lancet of May 8th (p. 1108).

CONCLUSIONS

(1) The continuous venous hum previously recorded in Hanot's cirrhosis and Banti's disease also occurs in endemic (bilharzial) cirrhosis of the liver in Egypt, with or without splenomegaly. (2) Six cases have been collected in the last two years. In one of them the hum disappeared after splenectomy. (3) Its disappearance was probably due to removal of some venous communication during the operation.

My thanks are due to Prof. H. B. Day for kind advice and encouragement.

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LYMPHATIC CYST OF THE EAR

By Min Sein, M.B. Calcutta, M.R.C.P. Lond.
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I have not been able to find any published account of the condition described in this note, which I have named "lymphatic cyst of the ear." I believe however that it is not uncommon.

Clinical features.—A painless, tense and cystic swelling, translucent on illumination, appears in the concha on the lateral aspect of one or both ears. Its progress is extremely slow, and it may not be noticed for a long time. When well developed it may completely fill the concha (see Figure). The pinna is not thickened and the auricular glands are not enlarged. The six patients I have seen have all been adult males living in Burma.

Ætiology.—There is no evidence of leprosy or filariasis. On aspiration of the cyst a thick straw-coloured fluid is obtained. Dr. N. Hamilton Fairley, who was kind enough to examine the fluid from one of them, reported that it contained no micro-organisms or cells and expressed the opinion that it was from a simple cyst. Evidently there is lymphatic obstruction of some sort and it is noteworthy that 5 of the 6 patients wore spectacles with curved aural supports which pressed against the angle formed by the ear and the skull. The spectacles had been worn for periods varying from 2 to 27 years. The sixth patient had no spectacles but wore a Burmese headdress called *gaungbaung* which consists of a fine silk scarf worn tightly round the head along a line passing across the forehead, just above the ears and downwards and backwards over the occiput. All these patients had seborrhœa, and often the irritation of the aural supports produced crops of acne and boils behind the ear. It is possible that the pressure exerted by the aural supports and the *gaungbaung* interfered with the lymphatic drainage of the ear resulting in

intermittent obstruction and cyst-formation in the area drained, and the repeated subminimal infections may also have favoured the onset and progress of the cysts. The Wassermann reaction was done in 2 cases and found to be negative.

Treatment.—The pressure behind the ear must be relieved and spectacles changed and fitted properly. The local treatment consists in evacuating the cyst through a medium-sized hypodermic needle and injecting a sclerosing solution through the same needle. The cyst is emptied by applying pressure from the periphery towards the needle. The presence of blood indicates that too much pressure has been applied. Quinine urethane solution (Parke, Davis and Co.) was used but other sclerosing fluids would serve. Pressure is applied for a few minutes, and a pressure bandage could be applied for a few hours if blood appeared during the evacuation. The condition may recur but can be treated in the same way again if need be. My six patients have had no recurrence in the 2–7 years that have elapsed since the last treatment.

SUMMARY

A cystic swelling developed in the concha of the ears of 5 persons who wore spectacles with curved aural supports. A similar condition developed in a patient who had pressure of a different kind applied round his head. The cyst is believed to be the result of lymphatic obstruction. Treatment by evacuation and injection of sclerosing fluid gives good cosmetic results.

A CASE OF NÆVOID AMENTIA

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Nævoid amentia is rare enough to justify the short description of a characteristic case. Tredgold [1] summarises the syndrome as a combination of nævoid growths of the skin and meninges, mental defect (usually idiocy or imbecility), hemiplegia, and epileptiform fits. The frequency of the condition is given as about 1 in 800 mental defectives, but the case described below is the only one discovered in an examination of more than 2000 defectives. Vascular nævi are discussed in greatest detail in the standard textbooks on skin diseases, but these do not usually mention the syndrome nor do they call attention to the association between vascular nævi of the skin and vascular abnormalities in the meninges.

FIG. 1.—Photograph showing extent of the nævus.

A feeble-minded woman, aged 36, has been under observation at Stoke Park Colony for the past five years. As Fig. 1 shows, there is an extensive nævus of the right side of the face limited below by the lip margin and a line from the angle of the mouth to the malar bone. Above the orbit, the nævus extends to the hair margin of the forehead and on to the hair-bearing area of the temporal region. There is no extension across the middle line of the face or scalp and the cartilaginous portion of the nose is not involved. On the buccal aspect the nævus covers the right cheek and extends on to the palate, but is again limited by the midline.

FIG. 2.—Radiogram of skull showing calcification in frontal region.

The lower limit of the nævus corresponds with the lower limit of the embryological maxillary process. The area covered by the nævus corresponds to that part of the face which is formed by the maxillary, lateral nasal, and median nasal processes, while the nasal part of the fronto-nasal process is normal. The exception to an otherwise exact correlation is the fact that the ala nasi (which is formed from the lateral nasal process) is covered with normal skin. The islands of nævoid tissue below the main nævus are good examples of Virchow's "fissural angiomata" situated at the junction of maxillary and mandibular processes.

The conjunctival vessels of the right eye are dilated and tortuous. Examination of the left fundus shows a normal disc with rather full veins. The right fundus shows a very deep physiological cup (−7D) with the fundus raised around it. The vessels at the cup edge can be focused with −3D and those in the periphery with −1·5D. The veins are very tortuous and dilated but diminished in number compared to the left side and the arteries are small.

Examination of the limbs shows a difference in development on the two sides. The left hand is smaller than the right and the left upper limb is shorter by 1½ in. The left lower limb is an inch shorter than the right. Both upper and lower limbs show muscular weakness and increased tendon reflexes on the left side. There is slight rigidity of the left lower limb, but the plantar reflex gives a flexor response. There is no alteration in sensation.

An X ray photograph of the skull (Fig. 2) shows irregular areas of calcification in the frontal region compatible with calcification in a plexiform angioma.

This patient has suffered from epileptic fits since coming under observation. Before the attack she complains of "pins and needles" in the left upper limb, and sometimes that the left upper and lower limbs "feel stiff." On regaining consciousness she feels "as if she has no strength" and the left upper and lower limbs "feel stiff" for a short time. Under ordinary epileptic treatment major fits now occur about once in six months.

My thanks are due to Dr. R. J. A. Berry, director of medical services at the Stoke Park Colony, for permission to publish this case.

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MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SUBSECTION OF PROCTOLOGY

AT the meeting of this subsection on May 19th, under the presidency of Mr. G. GORDON-TAYLOR, a discussion on the incidence and treatment of

Diseases of the Colon

was opened by Sir EDMUND SPRIGGS (Ruthin). Much, he said, had been written and stated about the colon in recent years, and a good deal had been done to it; there were those who would soothe, those who would stimulate, and those who would bind, loosen, or denervate. It had been abused for its sins and pitied for its sorrows. The condition of the colon had a profound effect on the body. It shared with the gullet and with the stomach (not with the small intestine) proneness to disease.

In a classification of over 8000 consecutive cases at Ruthin Castle, of all kinds of disease, it was found that one-third suffered from vascular disorders which were prevalent in middle age and beyond. The group of alimentary diseases, including rectum, liver, and pancreas, totalled nearly half the 8000. There were 1574 persons who had some affection of the colon, including colitis, diverticulosis, diverticulitis, and carcinoma. The diverticulosis cases numbered 612; in two or three hundred of these, diverticula were associated with other complaints. There were 51 cases of ulcerative colitis, 33 of dysentery, and 64 of growth, excluding growths of the rectum. There were 28 cases of obstruction, 8 of volvulus, 142 of redundant sigmoid. Also 1520 patients had simple delay—i.e., longer than 72 hours. These were not included in the 1574 cases under review; nor were cases of ptosis of the colon, of which there were 304. The average age for dropped colon was 43, for colitis 44, for colon delay 47, for diverticulosis 58, and for the later stages of diverticulitis 62, which was also the average age for cancer. There were three cases of colitis in women to each one in men, while the sexes, surprisingly enough, were equal as regards colonic delay. Of diverticulosis cases there were two males to each female, while for diverticulitis the proportion was nine to one. Among patients with new growths, males predominated in the proportion of three to one. Cases of colon disease were still missed, said Sir Edmund, because the simple precaution of examining the rectum was omitted; examination of the fæces and the use of the sigmoidoscope were of the utmost value. He deprecated the growing habit of attempting a radiological diagnosis by means of a barium enema alone. Flatulence was a term used often in medical reports without a definition; it might mean that a patient was bringing up wind from the stomach or was trying to do so, or removing wind from the bowel or trying to do so, or that he had distension or thought he had. Aerophagy was too often diagnosed nowadays. A patient with hypertrophic gastritis might retch hard and belch as long as the barium was in contact with the hypertrophic area. The effect of a small degree of distension of the small intestine was much greater than that of the same amount of distension in the large gut.

Of 1000 cases in which the patients were said to be constipated, 10 per cent. did not show radiological evidence of delay. In 1000 cases of real delay shown radiologically, the seat was the rectum in 11 per cent., the sigmoid and rectum in 33 per cent. A fourth of the patients were unaware of delay and of these nine out of ten had no disorder referable to the colon. Failure was due to over-drying of the fæces, or loss of stimulus, or a lesion of the anus or rectum. A purge emptied two or three days' fæces; therefore aperients should not be given more often than this. Of stimuli to the colon, distal ones were best. The main use of paraffin was to prevent the stool becoming hard; a dessertspoonful night and morning was usually enough; too much caused gurgling and discomfort. It was not normal for the cæcum to be a cesspool, but it could be made one. He believed that mucous colitis was now less common than formerly, and some credit for that could properly be taken by doctors for better teaching about purgatives.

Were redundant sigmoid loops congenital or acquired? Or were they in part congenital, and in that case did they develop as age advanced? X rays showed that when the bowel relaxed it became both longer and wider. If it did not do so, and this failure occurred many times, the elongation of loops could be explained. His view was that they developed during life, but twenty years' observation was needed to establish that idea. In his series, redundant sigmoid was commoner in people over fifty than under thirty. If surgery was contemplated, it should be ascertained whether or not the bowel shortened after evacuation. If it did, the case was less suitable for surgery. In cases of constipation sympathectomy had not been very helpful, though it was so in Hirschsprung's disease.

Twenty per cent. of patients with ulcerative colitis still died from it. Among the advances in his own time were the giving of these patients a less restricted diet. Secondly, gentle douching was a great help, but not more often than on alternate days. Rectal lesions must be dealt with, and a patient search made for entamœba; in five cases that organism was found only after months or years. He had usually found bacteriological methods disappointing, but some physicians reported good result from sera. Dr. J. R. Bell used Sir Arthur Hurst's method carefully and obtained 60 per cent. of recoveries in 64 cases, working in Australia, where, however, dysentery was commoner and the serum (originally prepared by Penfold and Patterson) was more embracing than that used in this country. If the patient had not had dysentery, he was being given a non-specific protein therapy. But when 20 per cent. of people died and when some remarkable recoveries were recorded by another method of treatment which yet had a mortality of 20 per cent. it did not follow that they were the same 20 per cent., and he asked whether a patient would have recovered if he had had serum therapy. Many, probably a greater number, had been treated with Dr. Bargen's diplococcal serum made from the patient's own organism. After the disappointment of fair hopes the reaction might tend to go too far, and one American physician of wide experience said he had abandoned all methods except rest and the usual symptomatic treatment, not even using the douche. Sir Edmund thought that douching helped, and he had seen recurrences when that measure had been omitted. Ulcerative colitis was a recurrent disease, in a way similar to gastric ulcer, and lives were lost because that fact was not universally recognised. The physician could enjoin living quietly, resting, avoiding strain and stress, and eating simple food. He had seen recurrences associated with a

period of stress and worry, with drinking beer, which was known to disagree, with colds, with pregnancy, and with other strains.

In 5116 examinations there were 11 per cent. of cases of diverticulosis, a term applied when pouches were present but did not cause inflammation of the bowel wall, the term diverticulitis being reserved for the stage at which inflammation and induration of the bowel wall had occurred. The distinction was of clinical importance, especially as many lay people now knew that diverticulitis could be a serious disease, and might prove fatal. His own view was that "sac" was a better term than "diverticulum." In 1920 Mr. Marxer at Ruthin Castle discovered a "prediverticular" stage, and that stage had now been observed in 132 patients. Its distribution and characteristics suggested an inflammatory rather than a mechanical origin. In the present series of cases the incidence of diverticulitis was 120 out of 612 cases (20 per cent.). Instantaneous photographs of diverticula contracting showed that the element of emptying was the important one; hence it was the muscular wall of the bowel which should be kept in good state so as to prevent diverticulitis. A not uncommon form was that in which mucosal folds occurred; it was this kind which was most likely to cause acute obstruction; sometimes it proceeded to definite polyposis. Almost 20 per cent. of cases of diverticulitis showed some form of polyposis. The treatment he recommended consisted of giving paraffin, using a douche every 2–7 days according to the condition, avoiding rich foods and especially alcohol, and enjoining a hygienic life. Great fatigue or worry sufficed to cause the disease again to raise its head. Massage to that part of the abdomen must be avoided; he had seen real harm follow it. Purges were better avoided as a rule. Excision could be carried out in an occasional case—i.e., if the patient was well enough for the operation and the affected area was localised. It was well known that a pouch might burst and cause general peritonitis. Diverticula might also perforate into the connective tissue; Mr. Marxer had demonstrated 5 such cases in a series of 120 cases of diverticulitis. Later stages accompanied by abscesses constituted grave surgical risks. If a diverticulosis was recognised soon enough and treated many of these sequelæ could be prevented.

Referring next to new growths, which his colleague Dr. Patterson had classified, Sir Edmund said the average age of patients with growths was 62 (the youngest being 39, the oldest 92), and the chief age-range was 50 to 70. They were three times commoner in men than in women and half of them were in the sigmoid. He was surprised that diverticulitis so seldom led to cancer, bearing in mind the prevailing view of the association of cancer with chronic irritation. In this, as in so many conditions, treatment of the growth with success depended on its early recognition. In his series the length of the history varied from a week to three years. The average time from the first symptom to examination was 11 months. If discovered at a suitable stage there was no region in the body in which excision of cancer was more successful than in the colon. A more general recognition of its early stages would mean a distinct step forward in its treatment. He noted the curious ways in which cancer of the colon showed itself. Sometimes it became well established without showing a symptom, but in most cases there was a symptom which dated back a long time. Of 64 cases of growth 36 had a bowel onset—i.e., constipation, diarrhœa, or irregular motions—17 had pain, many of them a long history of pain; 11 had a dyspeptic onset, and these were dangerous ones, because they were sometimes treated for months for peptic ulcer. If barium was given to examine the stomach, it should be followed right through the bowel. Eleven of the cases had rectal bleeding as a first symptom, and all those were sigmoid cases. In 7 cases no blood, mucus, or pus was detected in the fæces, showing that there was no ulceration. Every case of uncertain nature should be given a thorough examination. In all, 38 cases were operated upon. In 2 nothing could be done. In most a palliative operation was performed. Excision was done in 13, and in 8 it was successful; 2 were living ten years after the operation, and one of these had had a large lump with great dilatation of the bowel behind. The features determining whether excision would succeed were the character of the growth, and whether secondaries had developed.

In conclusion Sir Edmund said that in applying scientific methods one point which emerged was the amount of suffering which could be avoided by early and adequate examination wherever there was an element of doubt. On this occasion he had been speaking of the objective signs of disease, but perhaps in no other group of disease was it so necessary to consider also the mind of the patient—an aspect of medicine which should never be forgotten.

DISCUSSION

Mr. J. P. LOCKHART-MUMMERY expressed his agreement with everything Sir Edmund Spriggs had said. He had been increasingly impressed by seeing cases of apparent ulcerative colitis which had been tested many times for entamœba without success, but turned out eventually, after a long time, to be chronic dysentery. Whenever he suspected chronic dysentery he had emetine treatment given; in one such case the patient, a clergyman, was supposed to be dying after two months' illness, but was cured in two days and remained well to this day. He agreed that ulcerative colitis often recurred, and he attributed that fact to some hereditary disability; in some people the colon was less resistant than it was in others, and in three instances he had treated father and son for the same condition. One man had remained well ten years after treatment and when he came back with a recurrence he was found to have two very septic molar teeth. After removal of one of them he ran a temperature of 105° F., and was mentally ill. A vaccine was made from his pus, and after it had been given and the other tooth had been extracted he recovered. The speaker did not doubt that the recurrence was due to the septic teeth. Sympathectomy for chronic constipation, though a satisfactory operation, did not give permanent results. For colectomy to be justifiable a case must be a very bad one. Ulcerative colitis might be followed by a stricture extending from the cæcal angle to half way to the splenic angle.

Mr. ERIC CROOK asked how far constipation caused the development of redundant loops of gut. In a large mental hospital the incidence of volvulus seemed to be much greater than among ordinary people, being greater than the incidence of appendicitis. He did not know how far that was due to habitual neglect of bowel requirements.—Sir ROBERT ARMSTRONG-JONES said his recollection was that at Claybury Mental Hospital volvulus was very rare, as also was appendicitis.

Dr. G. E. VILVANDRÉ said he found it increasingly difficult, as a radiologist, to diagnose with certainty

carcinoma of either the bowel or the stomach in an early stage, and he often hesitated in his verdict. He was sure it was right to employ the sigmoidoscope as an aid to diagnosis, and in helping to decide whether to give a barium meal.

Mr. R. S. CORBETT spoke of the occurrence of intussusception in cases of new growth of the colon.

The PRESIDENT agreed that sympathectomy was of relatively little value for chronic constipation in adults and adolescents. The figures showing that diverticulitis and cancer are seldom associated were confirmed by the experience of Mr. Harold Edwards, of King's College Hospital, as set out in his Jacksonian essay. He asked whether any patient had had perforative diverticulitis twice; he had not known such a case.

Sir EDMUND SPRIGGS, in a brief reply, said he did not know of a patient having perforative diverticulitis twice. He had one series of four cases of ulcerative colitis in a family, but with that exception no apparent family tendency was apparent.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

A GENERAL meeting of this society was held on May 25th, Dr. ERNEST WARD, the president, taking the chair, when a discussion on the

Future of Obstetric Practice

was opened by Dr. W. G. SAVAGE (Somerset). He said that with the present rapid fall in birth-rate and in the number of potentially fertile women the value of each potential mother would be greatly enhanced. In the national interest any steps known to be the right steps should be taken to make motherhood safe, to preserve potentially fit infant lives, and to encourage wives not to avoid motherhood. There was however no sort of agreement as to what were the right steps: in spite of much knowledge about the needs and deficiencies of nutrition during pregnancy the actual foods required and their qualities were unknown. Nor was the relation of adequate nutrition to the complications of pregnancy, labour, and the child's health understood.

One of the most important things to be decided was the relative spheres of the doctor and midwife; and on this question there were two views which were not consonant. The British Medical Association memorandum required for every case efficient antenatal care by, or under, a medical practitioner; the attendance of a midwife on every case before, during, and after delivery; and attendance by the practitioner at the confinement whenever he or the midwife thought necessary. This scheme tended to relegate the position of the midwife to that of a maternity nurse with midwifery qualifications acting under the medical practitioner chosen by the patient. The official and legal view recognised the midwife to be an independent practitioner capable of undertaking complete charge of a maternity case. The midwife was bound to call in a medical practitioner to her assistance in certain circumstances; the speaker took the word assistance to mean that the midwife still remained in charge and the doctor's rôle was like that of a consultant. The scale of fees confirmed this view, but he thought the majority of medical practitioners translated "assist" into "supersede" even if called in to some condition such as albuminuria not immediately connected with the confinement. The exact relation of the two professions equally entitled in law to conduct midwifery practice urgently demanded the clearest determination. The divergent points of view could be reconciled if the midwife for her part clearly understood her responsibilities and their limits and the doctor abandoned the ideas that a midwife was just a kind of nurse and that when he appeared he was entirely in charge of the case until the end of the puerperium.

Dr. Savage held that the training and experience of a great many general practitioners was inadequate to fit them to act as consultants to assist midwives in emergencies except, say, that of illness of the child, or medical conditions of the mother. The B.M.A. suggestion that steps should be taken to increase the number of maternity cases which the general practitioner would attend did not give due consideration to two modern factors—the high proportion of cases taken by midwives (now 58 per cent. in Somerset) and the declining birth-rate. The cases taken by medical practitioners in Somerset (yearly average of 1935 and 1936) were:—

Doctors taking	less than 3 cases a year	..	42
,, ,,	3 to 5 cases a year	..	52
,, ,,	6 to 10 ,, ,,	..	46
,, ,,	11 to 19 ,, ,,	..	31
,, ,,	20 to 29 ,, ,,	..	14
,, ,,	30 or more ,,	..	8
			193

Some weeks before the publication of the Maternal Mortality Report (see *Lancet*, May 8th, 1937, p. 1125) Dr. Savage had suggested as the report had done that only medical practitioners with necessary experience should be called in by midwives.

The midwife of the past and of the present in many instances was a victim of that most terrible type of education, a specialised technical training built on a very limited general education. No group of people were more liable to make mistakes than one receiving such an education; hence the pattern of the rules which now harassed the midwife. The rules were being added to and the number of calls for medical assistance had increased enormously; this was unsatisfactory as it was expensive to the local supervising authority, it weakened the midwives' sense of responsibility, while the calling in of a doctor was not necessarily in the interests of the mother. The midwife of the future, the product of the 1936 Act, should be able to grasp the general principles as to what she could manage and when help was required. Dr. Savage felt that the rules of the Central Midwives Board should be simplified.

Dr. ELWIN NASH (Heston and Isleworth) drew attention to the disastrous effects of puerperal morbidity, from sickness of the mother and impoverishment from big medical bills. Speaking of the B.M.A. proposal that the services of a consultant should be provided when considered necessary by the practitioner, he said that much depended on the word "consultant." It might be taken to mean merely the next doctor down the road. The problem of the maternity services presented many difficulties to the medical officer of health and to the general practitioner. In his district the average number of deliveries attended by doctors was 6 a year; could such limited experience fit a man to be called in as an expert in emergencies? The B.M.A. was anxious to keep midwifery in the hands of the practitioner and to retain the family relationship

which in that sphere of medicine was the strongest and deepest of a general practitioner's work; but Dr. Nash felt that in view of the decline in numbers of the population the B.M.A. had left its effort until too late, and he foresaw that in time every mother would be confined in some institution. If the practitioner could be sure of his patients going to institutions and being attended by someone who was not competing with him he might be glad to be free of midwifery work. If, however, there should be a panel of local practitioners doing obstetric work and yet remaining in general practice there might be the most horrible rows until the scheme were withdrawn. The Scottish report had suggested that nutrition did not matter but the work done by Lady Williams in the Rhondda Valley seemed to demonstrate the need for consideration and investigation of this possible factor. It might be better for the individual to have at her disposal the latest scientific information and skill, with highly trained specialists working as a team, as part of a health service, on an insurance basis, but on the other hand the loss of the old relation between family doctor and patient with its profound psychological influence might be breeding a race of neurotics. Since he had written his communication to the meeting, said Dr. Nash, three reports had come out, and in them mention of the general practitioner was seldom made. It was perhaps well to ponder Sir Ewen Maclean's saying that a national maternity service which excluded the general practitioner from its responsible personnel was impossible and unthinkable.

Dr. J. A. NEILAN (Seaham Harbour) spoke from 35 years of general practitioner experience. He contrasted the opportunities of a present-day practitioner with those of thirty years ago and mentioned also that he had found modern midwives inexperienced too. To his eyes they were just flappers thinking much of their day off and keen to call in help to hurry on their cases. Dr. Nash had referred to the large bills impeding some mothers' recovery; some young practitioners regrettably looked on their profession as a trade or business, although the doctor's position was a privileged one; he himself had always eliminated bills which might cause the patient or the children to suffer. There was said to be a higher proportion of abnormal cases nowadays, an idea derived perhaps from the midwives' statements on calling in practitioners in cases where no true abnormality existed. Dr. Neilan thought that pelvic abnormality might be due to the wearing of high heels.

Dr. AGNES NICOLL thought some difficulties would arise in the coming schemes from the fact that a woman needed to be under a doctor during her pregnancy and puerperium. She felt that the health authorities should provide general practitioner attendance. The midwives were going to be specialists in normal midwifery but they were not doctors and could not supervise the puerperium as a doctor could. Was there any reason why a woman should not have her doctor in charge of her at her own or the public health authorities' expense? She held that the general examination should be made by the general practitioner and the obstetrical antenatal examination by an obstetric specialist. It had been said that it was impossible for a practitioner to call in a local colleague as a specialist but she did not think the practitioner need necessarily lose his patients' confidence.

Dr. J. B. HOWELL (Hammersmith) referred to the very rapid increase in use of institutional beds for confinements in his area and to the reduction in maternity work among the doctors. In the near future sufficient accommodation would be provided to take every case. There had been a great reduction in maternal mortality in that area.

Dr. CATHERINE MORRIS JONES (Gloucestershire) drew attention to the great difference between town and country practice. It would be very hard for two country practitioners in partnership to make a distinction between them and to state which of them was competent in midwifery; many country doctors had extremely good results. In Dr. Jones's area delay and perineal tears were the two common abnormalities; the bulk of the midwifery practice went to the midwives who often had no afternoon off and were reluctant to take their scanty fortnight's holiday because of the difficulty of leaving their patients.

Dr. NORA WATTIE spoke of the difficulty experienced in Scotland of setting up complete medical and midwifery services in six months.

The PRESIDENT wondered whether enough women would be obtainable to stay the course in the coming midwifery services.

Dr. SAVAGE, in reply, thought there had been general agreement that the present position could not go on. He pictured a few obstetric consultants with the big consultants over them. That left no room for the general practitioner and he saw no need for a triple arrangement. He agreed that the calls for perineal tears had increased and doubted whether the present arrangement gave value for money. He referred to the possibility that the general practitioner might become a dodo.

NEW INVENTIONS

AN IRRIGATION CATHETER

THE catheter illustrated has been found to provide an easy and efficient means of irrigating the prostatic urethra. The procedure is as follows. After the passage of the catheter (size 16, Charrière) the rubber balloon, A, is distended with water through a separate channel to which access is given at B. The catheter

The catheter in sections.

is then pulled upon gently so that the distended balloon makes contact with the bladder wall at the internal orifice. Fluid in the prostatic urethra is thus prevented from flowing into the bladder. The irrigating fluid is introduced at C, traverses the main channel of the catheter, reaches the prostatic urethra through numerous small holes at D, and is returned along the catheter to be voided at the external meatus.

The instrument has been evolved and made for me by the Genito-Urinary Manufacturing Co. of London.

PERCIVAL P. COLE, M.B. Birm., F.R.C.S. Eng., L.D.S.
Senior Surgeon to the Seamen's Hospital, Greenwich, and Queen Mary's Hospital for the East End, London.

REVIEWS AND NOTICES OF BOOKS

Fluorine Intoxication

A Clinical Hygienic Study. By Dr. KAJ ROHOLM. London: H. K. Lewis and Co. 1937. Pp. 364. 20*s*.

THIS book contains much new and original matter. It opens with an adequate review of the known facts concerning the effects of fluorine upon health. The action of fluorides on the skin are first described, and then the symptoms, signs, and occurrence of acute "fluorine poisoning by ingestion" are discussed. The frequency of poisoning by ingestion appears to be increasing; 53 cases were recorded between 1918 and 1935. Insecticides, rat poisons, disinfectants, corrosives, and preservatives provide the common sources of this kind of acute fluorine poisoning: sodium fluoride (NaF), sodium fluosilicate (Na_2SiF_6), and dilute hydrofluoric acid are the compounds which are usually responsible. Accidental ingestion is the rule; suicide is rare. The symptoms of fluorine when taken by the mouth are those of an acute gastro-intestinal irritation, followed by restlessness and then collapse.

On the subject of chronic poisoning Dr. Roholm, after referring to some records of doubtful cases, presents an excellent account of the original work carried out in 1931–32 by Moller and Gudjonsson in a factory in Copenhagen in which cryolite ($Al_2F_6.6NaF$) was cleansed and ground. Moller found that the workers suffered from "a peculiar sclerotic bone affection, affecting especially the vertebral column and the pelvis," and the authors assumed that the affection was caused by fluorine. In 1916 Black and McKay studied a peculiar dental disease, which showed, as a characteristic symptom, dark patches upon the enamel of the teeth (mottled teeth). This disease was found to be widespread in Colorado and elsewhere. It affected the permanent teeth only of children who had actually grown up in Colorado, and the teeth were not usually deformed. Two changes were observed: irregular patches of the enamel lost their transparency and came to resemble chalk or unglazed paper; this change was evident as soon as the permanent teeth erupted. As a secondary condition, these white patches became stained with a dark pigment. The degree of staining varied from yellow to black. Transverse bands of "mottled" enamel might be noticed, occurring especially on the labial surface of incisors and canines, in areas exposed to the light. The enamel was brittle but the teeth were not otherwise especially subject to caries. Petry and later Churchill in the U.S.A. traced the source of this condition to a high fluorine content in the water. It appeared that the threshold value is about 1 mg. per litre. Cases of dental disease of this kind have been recorded all over the world, including certain parts of England.

A valuable chapter follows upon the effects of fluorine upon plants and animals. The damage to plant and animal life around superphosphate works, certain chemical factories, copper, aluminium, glass and metal (blast) factories is described. After a discussion on the natural occurrence of fluorine, experimental chronic intoxication is described in great detail. The identity of the animal disease with the human appears to be established beyond question. In the second part of the book a detailed account is given of the author's special contributions to the subject. These consist of (*a*) a clinical study of a large number of workers (and their families) who are exposed to fluoride both in Greenland and in the factories of Copenhagen, and (*b*) a careful experimental investigation of the effects of fluoride intoxication in rats, pigs, calves, and dogs.

This book is of interest and importance to practising doctors, medical officers of health, to industrial medical officers in any industry in which felspar and other fluorine-containing materials are used, to veterinary surgeons, and to agriculturists. We hope that it will be widely read. The translation from the Danish is good, though quaint expressions have crept in—e.g., we do not say that an animal has an "unthrifty" appearance when we mean that it is out of condition. The attention of radiologists should be drawn to the bone conditions described in this monograph. Are the bone changes resulting from chronic fluoride poisoning discoverable in any British industrial areas?

Radiothérapie gynécologique

Curie- et Rœntgenthérapie. By R. MATHEY-CORNAT, Radiologiste des Hôpitaux; Médecin de la Fondation Bergonié (Centre anticancereux de Bordeaux et du Sud-Ouest); Chef du Service central d'Electrologie des Hôpitaux du Groupe Pellegrin-Le Tondu. Paris: Masson et Cie. 1936. Pp. 370. Fr.60.

THIS book gives an interesting survey of recent French opinion on the treatment of gynæcological conditions by radiotherapy. The first chapter discusses the physiological basis of treatment, and describes the effect on the constituent cells of ovary and uterus, and the varying sensitivity of Graafian follicles, interstitial cells, normal connective tissues, and neoplastic cells of fibromyoma. In assessing the effects of radiation the work of Regaud on the time factor and the relative sensitivity of the malignant tissues is accepted. The author suggests seven to ten days for intracavity radium, and four to eight weeks for external radiation, as periods which make it possible to give a maximum dose without increasing the resistance of the tumour. The measurement of dosage is discussed in the chapter on technique, which is clearly written but not up to date.

The problem, still exercising the minds of experts, of the use of the Röntgen (*r*) to express the dose received in the tissues is dismissed briefly, and a list of methods is given without consideration of all the necessary factors. On the clinical side there is a short general account of the changes produced by radiation, and a careful and interesting section on each type of disease that the author regards as suitable for radiation therapy. He begins with non-malignant diseases, and the chapter on fibromyoma is particularly interesting. Lipiodal injection is used in making the diagnosis, and allows the size and shape of the tumour to be visualised. The question of operation or radiation is discussed without bias and various methods of treatment are described. The author prefers to give daily treatment over a period of from 20 to 35 days, and delivers quite a high tumour dose—2000 to 2500 *r*. He claims that if suitable cases for radiation are selected, 95 per cent. are cured, a figure which includes small fibromyomata complicated by hæmorrhage. For menorrhagia and metrorrhagia either radium or X rays give satisfactory results. The dose need not be high when, as often happens, the patient is near the menopause; 1000 milligramme hours is usually enough. X ray therapy, but not radium, is recommended for inflammatory conditions—a point of interest to British gynæcologists,

who seldom make use of this possible method of attack. The doses given are very small, and in young patients produce only temporary amenorrhœa. The treatment of malignant tumours is discussed at length, and the whole section provides a useful survey of possible techniques, and their results. Such a survey is badly needed for reference, and this one will certainly be welcomed; its interest would have been increased to our readers by the inclusion of results from one or two British clinics.

The final chapter is on cancer of the breast, which organ is included in France with gynæcological conditions. The problems discussed are so different from those connected with disease of the female genital organs in the pelvis that the section must stand alone. For this purpose, it is incomplete, and the mere mention of conditions such as lympho-sarcoma and nævocarcinoma of the breast is only confusing. The glancing technique of Finzi and Holfelder is not described.

The book, which is written for the surgeon and gynæcologist as well as for the radiologist, is printed in clear type and is well illustrated.

Materia Medica, Toxicology and Pharmacognosy

By WILLIAM MANSFIELD, A.M., Phar.D., Dean and Professor of Materia Medica and Toxicology, Union University, Albany College of Pharmacy. London: Henry Kimpton. 1937. Pp. 707. 30s.

THIS book is said in the preface to be a "text and reference book on the therapeutics, toxicology, pharmacognosy, and posology of the official drugs in the United States Pharmacopœia XI and the National Formulary VI." The author is rather optimistic in hoping that it will prove of value to people of such varied experience and needs as physicians, pharmacists, and students of pharmacy, medicine, and nursing. The section of the book devoted to pharmacognosy, which fills more than two-thirds of its total bulk, is mainly of interest to the pharmacist, since the medical student of to-day is not usually expected to recognise more than a very few crude drugs nor are physicians greatly interested in the ultimate origins of the preparations they use. Each crude drug is well illustrated by photographs and adequately described. The section on toxicology opens with a general discussion of poisons and of antidotes and details of individual poisons follow. This section again is unlikely to appeal to the physician for both symptoms and treatment are dealt with very briefly and without adequate indications of rationale. Some of the statements made are inaccurate as for example that atropine is a cardiac stimulant and that iodides "dissolve sclerosis" in arterio-sclerosis. The book concludes with a list of drugs arranged both in order of doses and alphabetically, and a glossary of botanical terms is appended. The volume as a whole is more likely to give help to the pharmacist than to the physician; it is a valuable work of reference on pharmacognosy.

Quarterly Journal of Medicine

THE April number (Vol. VI, No. 22) contains the following papers:—

TREATMENT OF ACUTE RHEUMATIC POLYARTHRITIS WITH CONCENTRATED ANTISCARLATINAL SERUM. By John Eason and Gurth Carpenter (Royal Infirmary, Edinburgh). Forty-four cases were treated, most of them receiving no salicylates. They remained febrile longer than salicylate-treated patients, but suffered fewer relapses and recrudescences. The authors plead for further experimental use of serum in the hope that it may prove less unsatisfactory than salicylates.

THREE CASES OF IDIOPATHIC STEATORRHŒA (Gee-Thaysen's Disease). By Erik Mogensen, Copenhagen. Detailed reports are given, and the relationships of this condition, cœliac disease, sprue, and pernicious anæmia are discussed.

THE HÆMOPOIETIC ACTIVITY OF HUMAN LIVER. Part II. Achrestic Anæmia and Aplastic Anæmia. By John Frederick Wilkinson, Louis Klein, and Charles Amos Ashford (Manchester). Extracts prepared from the livers of four cases of achrestic anæmia, two of aplastic anæmia, and one of untreated pernicious anæmia were tested for their content of anti-anæmic liver principle by injection into patients suffering from pernicious anæmia in relapse. A typical reticulocyte response was obtained with all extracts except that from the liver of the case of pernicious anæmia. This is proof that in patients dying of achrestic and aplastic anæmias the liver contains normal amounts of anti-anæmic liver principle.

OBSERVATIONS ON THE SITE OF THE ANTAGONISTIC ACTION OF POSTERIOR PITUITARY EXTRACTS ON INSULIN HYPOGLYCÆMIA. By Henry Cohen and Julius Libman (Liverpool). Posterior pituitary extract, given by injection in man (eleven experiments) causes an increase in the hyperglycæmia that follows the ingestion of 50 g. glucose, and at the same time a diminution in the arteriovenous sugar difference—i.e., it antagonises the peripheral action of insulin. A similar peripheral antagonisation, rather than a mobilisation of liver glycogen, will therefore explain the observation that posterior pituitary extract counteracts insulin hypoglycæmia.

OBSERVATIONS ON SKIN SENSITIVITY IN ASTHMATICS AND CONTROL SUBJECTS. By R. S. Bruce Pearson (Guy's Hospital). Intradermal testing for skin sensitivity to one or more of four substances (horse dander, feathers, wheat, and egg-white) was carried out on some hundreds of asthmatics and of control subjects. Skin sensitivity to the inhalants is fairly common among the controls, but in general the asthmatics give a higher percentage of positive reactions and a higher proportion of large reactions. Controls with past or family histories of "atopic" conditions occupy an intermediate position between the controls giving no such history and the asthmatics. Multiple sensitivity is common. Sensitivity to inhalants is greatest, both in asthmatics and in controls, between the ages of 15 and 30.

SYSTEMATISED ATYPICAL AMYLOIDOSIS WITH MACROGLOSSIA. By F. Parkes Weber, Stanford Cade, A. W. Stott, and R. J. V. Pulvertaft (Westminster Hospital). One case is reported, in a woman of 48, showing enlargement of the tongue, pain in the finger-tips which were hard and pinkish-red, and pain in the legs resembling intermittent claudication. Microscopically, an amyloid change, with atypical staining reactions, and a nodular often eccentric distribution, was found in the walls of arteries and arterioles in tongue, finger-tips, and gastrocnemius. Tongue muscle was also involved. None of the usual causes of amyloid disease was present. Ten other cases are cited from the literature.

ACHLORHYDRIA, ANÆMIA, AND SUBACUTE COMBINED DEGENERATION IN PITUITARY AND GONADAL INSUFFICIENCY. By I. Snapper and J. Groen, D. Hunter, and L. J. Witts (from the Wilhelmina Gasthuis, Amsterdam, the London Hospital, and St. Bartholomew's Hospital, London). The authors describe six cases of a syndrome involving alopecia, hypogonadism, depression of metabolism, and anæmia (macrocytic or microcytic) associated with proved or probable anterior pituitary lesions. Five of the patients had achlorhydria and they suggest that this is a result of the pituitary deficiency, and in turn is the immediate cause of the anæmia. They suggest a similar pathogenesis for the syndrome of pituitary disease, achlorhydria, and subacute combined degeneration known as pituitary pseudo-tabes.

PLASMA PHOSPHATASE IN DISEASE: A Review. By Noah Morris and Olive D. Peden.

THE LANCET

LONDON: SATURDAY, MAY 29, 1937

ROCKEFELLER BOUNTY

WITH the death of JOHN D. ROCKEFELLER at the great age of nearly 98 years an almost legendary figure has stepped quietly, almost imperceptibly, from the present into the past. The day will come when his life and endeavour will be written at full length, for almost alone among the world's rich men he has found a lasting place in the human imagination. There was something heroic in his mould, something dramatic in the dénouement of his life, which made him the very sign and epitome of his times and the last and almost tragic representative man of an age of individualism which has perhaps passed for ever. The plot of his life is briefly told. Unbounded and self-sufficing ambition, machine-like industry and efficiency, riches amassed unemotionally and perhaps ruthlessly until they surpassed the count of man. In the plenitude of power and wealth came the conviction born of a deep puritanism that what had been wrenched without mercy from the world must be returned to it with interest; the machinery of his great wealth was put in reverse and the redistribution was carried out with the same genius and unrelenting thoroughness which went to its amassing.

To medicine J. D. ROCKEFELLER has been the greatest monetary benefactor of all time, not only as measured by the vast sums he expended, but also by the skill and forethought with which the money was invested. He was fortunate in his choice of medical advisers or perhaps it would be fairer to say he was incomparably skilful in choosing them. As his great wealth had been acquired with a vision which went far beyond the limits of his own country, so it was spent without consideration for national boundaries. In this country alone the Rockefeller benefactions have been of unexampled magnitude and as we look back on them we are glad to think that it would be hard to suggest how they could have been made to better advantage. Thus the schools of London, Oxford, Cambridge, Edinburgh, and Bristol were given princely sums for important and overdue schemes of expansion. In London outstanding gifts were those to University College and its Hospital, to the London School of Hygiene and Tropical Medicine, and towards the building of the new university premises in Bloomsbury. Many other universities and medical schools throughout both the British Empire and the world have likewise benefited according to their needs and deserts. In the United States itself there can be few medical schools or research institutions which are not indebted to the Foundation which for some ten years or so after the war seemed never to fail to meet every really deserving demand. The central monument of the Foundation is of course the Rockefeller Institute in New York. In this institute medical research in its widest sense was given a home and endowment on a scale paralleled by no other medical research institution in existence. The finest medical brains in the world were there attracted by the facilities for research. In this institute were conducted the work of FLEXNER on meningitis, of CECIL, DOCHEZ, and AVERY on pneumonia, the brilliant researches of PEYTON ROUS on transmissible tumours, NOGUCHI'S spectacular if sometimes misleading investigations on syphilis, yellow fever, and bartonella infection. Here too KARL LANDSTEINER built up the great school of immunological chemistry the fruit of which is now only beginning to be fully borne; while even wider in interest and passing far beyond the confines of medicine was the work of ARMAND CARREL on tissue culture, and of JACQUES LOEB on the dynamics of living matter. Not the least inspired of the views of the Rockefeller Foundation was the realisation that there are no real boundaries to scientific knowledge and that the problem of medical education and research is not so much one of medical education as such, but of education in general. Thus as the Foundation grew in experience and wisdom it became less purely medical in its activities, and in England we profited by this outlook in the benefactions to libraries and to such institutions as the London School of Economics. Relatively few of the great sums distributed by the Foundation took the form of permanent endowments. It was considered sufficient to plant the sapling and leave it to others to make the salutary effort by tending it and bringing it to fruition; but the Foundation never went by hard and fast rules and where endowment was necessary and advisable it was arranged in the most elastic way possible. No institution and no individual who benefited from the Foundation ever felt the dead hand of formal charity. It is this tact and true understanding of the very spirit of learning and research which has earned the gratitude of the medical profession and which has been a model to countless benefactors who have followed the example of the great American philanthropist. To the medical profession J. D. ROCKEFELLER will always be something more than the wizened and eccentric old gentleman who gave new dimes to passing children—something more too than the richest man in the world, whose name became as proverbial as Crœsus. For the medical world, perhaps alone, is in the position to realise the grandeur of the drama of restitution which was played out in his life. In the midst of the murkiness and cruelty of the arena of nineteenth century commercialism, where he stood a peerless victor, he saw a vision and of that vision was born an ideal.

FOOT-AND-MOUTH DISEASE

THE task of investigating this important and damaging disease of livestock has proved to be one of exceptional difficulty. As long ago as 1924 the British Foot-and-Mouth Disease Research Committee was formed "to initiate, direct and conduct investigations into foot-and-mouth disease, either in this country or elsewhere, with a view of discovering means whereby the invasions of the disease may be rendered less harmful to agriculture." The fifth progress report[1] now published covers work carried out during the years 1930–35, and despite its high standard no dramatic solution of the problem set in the terms of reference has been reached. Needless to say, as a result of prolonged and intense study a better definition of the disease and its problems has been obtained and the presence of a standing scientific committee must have helped the Ministry of Agriculture even in carrying out with efficiency the older methods of control. The educational value of the research has been considerable, notably in the opportunities afforded to British veterinary research workers of mastering the difficult methods of virus study; the veterinary study of viruses in this country has advanced to the forefront during the last few years from a position of insignificance.

That foot-and-mouth disease may be caused by several closely allied but serologically different viruses makes the difficulty of prevention by any type of vaccine almost insuperable and the failure to work out an effective method of inoculation represents the major disappointment of the investigation. Valuable information has, however, been accumulated as to the resistance of the virus to physical and chemical influences. It has been shown, for instance, that the virus may resist cold-storage temperatures for prolonged periods and that it can be dried on fabrics and other materials and retain its virulence. These observations have led the Ministry to introduce orders compelling the cooking of animal products before feeding them to livestock and to make certain requirements as to wrapping materials. These regulations should eliminate some at least of the outbreaks. Important advances have also been made in the simplification and effectiveness of disinfection methods. Increasing reliance is now being placed both here and in Germany on alkalis, such as washing soda or dilute caustic soda, in disinfecting contaminated objects and premises. The possibility of the disease being imported into this country by birds has often been discussed, but the recent work of the committee has shown that though certain kinds of birds, such as ducks and gulls, can be experimentally infected, their susceptibility is low and they seem unable to propagate the disease by contact. Evidence that rats or other rodents take any serious part in the propagation of the disease has also been wanting. Of recent observations undoubtedly the most interesting is that hedgehogs are not only highly susceptible to experimental infection but can also acquire the infection naturally. Not only were infected hedgehogs able to infect one another by contact but they appeared to be able to transmit the disease to a cow when placed in the same stall. Obviously much more information is desirable on the extent of infection among hedgehogs and also on the experimental course and character of the disease in these animals; but even if, as seems likely, the hedgehog is of no special importance in the natural propagation of the disease among livestock, the discovery of a highly susceptible and easily obtainable small mammal may prove to be a great help in future study. Further work has confirmed the view previously held that arthropod vectors are of little, if any, significance in the transmission of the disease.

From the purely practical standpoint it may be felt that these are meagre results to be gleaned from so prolonged and costly an investigation, but the by-products of the research have a definite value of their own. The high standard of scientific work recorded in this and previous reports on the subject makes it clear that if the practical problem of preventing foot-and-mouth disease has eluded solution it is not due to any lack of efficiency and devotion on the part of the investigators.

[1] Ministry of Agriculture and Fisheries. Fifth Progress Report of the Foot-and-Mouth Disease Research Committee. London. 1937. H.M. Stationery Office. 7s.

THE WAYWARD PEDESTRIAN

THE report of the Commissioner of Police of the Metropolis shows that, after a reduction in 1935 of the number of persons killed or injured in traffic accidents, there has been an increase in 1936 and the number killed or seriously injured has risen to 7363. The figure for pedestrians has slightly fallen, but they and pedal cyclists still make up roughly 70 per cent. of the total of 57,325 killed or injured, and a special analysis of 35,851 accidents during eight months led to the assessment of 83·5 per cent. in which pedestrians were regarded as to blame; another analysis for the whole year produced a figure of 76·4 per cent. Among pedestrian children there were 5459 casualties, 89·9 per cent. of the total, for which they themselves were deemed responsible.

Such phrases as "to blame" and "deemed responsible" are perhaps unavoidable, but they tend to obscure the fact that modern traffic is demanding from mankind a new set of responses and reactions for which his previous experience has not prepared him. "Hesitating in traffic" accounts for 5·4 per cent. of accidents to blameworthy pedestrians and is, especially for the very young and the old, a form of behaviour not likely to be eliminated even by a strict application of the law of the survival of the fittest. "It may be irritating," says Sir PHILIP GAME in his report, "to have to walk warily and to be thinking constantly of traffic when there are much more interesting things to think about"; but it may be not only irritating, it may be impossible, to maintain a forced attention which, unlike the process of avoiding collision with fellow pedestrians, cannot be relegated to centres below the level of the cerebral cortex. We must, in short, be ready to

recognise difficulties and limitations in the demands to be made upon the conscious control of human actions in these new circumstances, and to accept the need for restrictions which would not be necessary if we all could be sure of doing the right thing at the right time. There are, however, helping to swell the distressing totals, human factors dependent not upon the inadequacy of perception and reaction but upon the positive development of harmful behaviour. The sense of power and the thrill of speed called forth by the command of a modern car become dangerous incentives whose results can be studied in newspaper reports of fatalities. On the other side exists a resentment against speed and the domination of weight and power which expresses itself in unreasonable behaviour. The objection of cyclists, for example, against carrying rear lights was supported by the rational argument that, if rear lights were compulsory, then the cyclist whose light failed was in far more danger than he is at present when the motorist is compelled to watch for the unlighted machine. Behind this objection there probably lay the unexpressed desire not to make things more easy for the motorist. It has been said that many a dead man had the right of way; but the vindication of his claim has brought little of value to him or to posterity. Add to this the British characteristic, whether for good or evil, of a preference for independence, and we can understand Sir Philip's suggestion that something might be done to check by law the most flagrant of the suicidal wanderings of pedestrians. It seems unquestionable that further measures of control are necessary. The American prohibition of crossing a road diagonally (called "jay walking") might help to set up a new and safer behaviour to the advantage of all users of the road, and both drivers and pedestrians are familiar with the indecision at a marked crossing called forth by the pedestrian's doubt whether an oncoming car intends to give him the right of way, and the driver's irritation consequent upon his need to wave on the hesitant one; some means might be devised of indicating automatically the intention of the driver. These and other measures call for trial; but there remains an uncomfortable feeling that perhaps the greatest danger of all is of becoming reconciled to a casualty list equal to that of a rather important war.

EXPERIMENTS ON THE ÆTIOLOGY OF LUNG TUMOURS

SINCE the beginning of the experimental production of cancer with carcinogenic substances it has been believed that the carcinogenic effect of these substances is confined to the site of application—usually the skin. This belief is probably correct for the skin in the sense that cancer of the skin hardly ever develops outside the area treated with the carcinogen. But the production of mammary cancer in both males and females by cutaneous application of œstrogenic hormones has shown that cancer can develop at a site remote from the skin to which they are applied, even although the skin itself never responds to these hormones by carcinogenesis. This effect is not restricted to animals from a highly inbred strain with a high incidence of mammary cancer in the females, as has been suggested, but has been observed in animals from an inbred strain with a low incidence and in mice of mixed strains with a low incidence of mammary cancer in the females. It is seen that the œstrogenic hormones, which in physical properties and in chemical constitution are closely allied to such carcinogenic substances as benzpyrene or dibenzanthracene, may be absorbed by the skin without inducing a cancer locally, but may have a carcinogenic action on one particular tissue remote from the site of application—the mamma—to which they travel in the blood.

These new facts have reawakened interest in the occurrence of lung tumours in mice whose skin has been painted with tar. This sequence had been noted by a number of observers, beginning with MURPHY and STURM, but hitherto has not been thought significant. The reasons for ignoring it were, first, that it is not of universal occurrence, being seen most often in stocks of mice that developed lung tumours spontaneously; secondly, that the spontaneous lung tumours of mice are mostly benign, and in records of growths in the lungs of mice subjected to tar-painting a clear distinction has seldom been made between benign and malignant growths. To account for these tumours arising in an organ to which tar had not been directly applied it was often assumed that the tar had reached the lung by inhalation: that the inhalation of dust particles coated with tar may give rise to malignant lung tumours in mice has been demonstrated by ARGYLL CAMPBELL.[1] Recently, however, CLARA LYNCH[2] and subsequently ANDERVONT[3] have shown that subcutaneous injection into mice of dibenzanthracene dissolved in lard, which is followed by development of sarcomata at the site of injection, will also produce lung tumours. This effect was seen in a mixed strain of mice and in a highly inbred strain, A, which showed a high incidence of spontaneous lung tumours. In this latter strain the lung tumours arising after the injection of dibenzanthracene appeared more rapidly and in greater numbers than they would have done spontaneously. In seven other highly inbred strains which do not show a high incidence of spontaneous lung tumours the subcutaneous injection of dibenzanthracene did not produce lung tumours, although it was followed by the appearance of what ANDERVONT calls "spontaneous tumours" (presumably sarcomata) under the skin. Since P. R. PEACOCK has ingeniously demonstrated that such carcinogenic substances as dibenzanthracene, when injected subcutaneously, are carried away rapidly from the site of injection by the blood stream and thus reach internal organs the appearance of lung tumours after cutaneous or subcutaneous application is easily explained. But why is the

[1] Campbell, J. A. (1934) *Brit. J. exp. Path.* **15**, 287.
[2] Lynch, C. J. (1935) *Proc. Soc. exp. Biol., N.Y.* **33**, 401.
[3] Andervont, H. B. (1937) *Publ. Hlth Rep., Wash.* **52**, 212, 347.

carcinogenic action of these substances focused on one organ—in this case the lungs? We have to postulate a special organ-susceptibility to cancer, which varies in different strains and even in different mice, and it becomes clear that there is a close similarity between the production of lung tumours by injecting dibenzanthracene and of mammary tumours by painting the skin with œstrogenic hormones. The findings of ANDERVONT greatly complicate the problem of the ætiology of lung tumours in man. For we can no longer confine our attention to carcinogenic agents capable of reaching the lungs by inhalation, but must also consider the possibility of carcinogenic agents reaching the lungs by the blood stream.

In one paper ANDERVONT refers to the growths in the subcutaneous tissue and in the lungs as "subcutaneous tumours" and "lung tumours" without giving details of their benign or malignant nature; but it can be taken for granted that all the subcutaneous tumours were sarcomata. In another paper he gives illustrations of some of these tumours, which establish their malignancy, and he describes the successful serial transmission of four lung tumours obtained in Strain A by dibenzanthracene and of one spontaneous lung tumour from a mouse of the same strain. The last-mentioned tumour was an adenocarcinoma and retained its structure in the course of propagation, but in three other growths the morphological appearance underwent a change which ANDERVONT describes as a sarcoma development, similar to that observed by M. HAALAND in 1908 in a mammary carcinoma. Among the skin tumours of mice obtained by tar-painting there have been many, composed of spindle-cells and having the morphological appearance of a sarcoma, which on closer histological analysis proved to consist of cells which were derived from the epithelium but had assumed a spindle shape. It is not clear why ANDERVONT has not considered this possibility, and until it is excluded there must be some doubt whether the change he has observed really represents the development of a sarcoma in a carcinoma.

ANNOTATIONS

THE COST OF SALVAGE

RECENT questions in Parliament elicited the fact that in an average year a sum of rather over two million pounds is expended on the medical inspection and treatment of children in the public elementary schools of England and Wales, and a like sum on the education and treatment of children of the same age in special schools. In each case the expense is met in equal parts by the Exchequer and the local rates. And it was evident from the form of the questions that not everyone is satisfied of the justification for expenditure on this scale. The general work of the school medical service needs little extenuation, it is an integral part of the campaign for national fitness; less obvious to those without inside knowledge is the justification for the heavy cost of special education and treatment of the blind, the deaf, and the mentally defective. Practically speaking these defects cannot be removed, though they may be arrested; the victims cannot be made normal, and yet the cost of their treatment and education is twice or thrice as great as that of those who are of so much greater value to the community. The answer lies in the word "training," for though the defects themselves may be permanent the resulting handicaps can be so lightened that after special training for a few years the deaf can communicate with their fellows, the blind can read and write, and the mentally defective acquire stability, while the majority of each group is taught occupations which save them from being in misery themselves, a hopeless drag on the education of the normal, and a life-long burden on the community. Even with the mentally defective, experience in areas like London and Birmingham shows that about half the known ex-pupils are more or less self-supporting, and less than a fifth are inmates of any kind of public institution. In schools for the blind and deaf the results are better than this. The process may not be the creation of a national asset, as is the prevention and cure of disease in the more normal, but it is the liquidation of a debt. Looked at merely from the economic aspect a long view reveals the fact that a generous outlay wisely dispensed is sound finance; as in the modern legislation for the training of the blind, wisdom and humanity go hand in hand. To ignore the existence of defectives—physically and mentally—would be foolish as well as cruel and proper provision for them is inevitable. It must be realised also that the more expensive measures often give the better results and are in the long run the least wasteful. With the higher type of defective a little more spent on treatment and training for a few years may save the expense of upkeep for a lifetime. The principle must be applied with discretion and, in fact, precautions are taken to prevent waste of effort in attempts to train the untrainable, the selection of suitable cases falling mainly on the medical officers. The work of prevention, cure, and salvage is admittedly incomplete, but as far as it goes it is well carried out and well worth the money.

GASTRIC ACIDITY AND CHRONIC ALCOHOLISM

ABUSE of alcohol has been for long regarded as a cause of impaired gastric secretion. Statistical data upon this point have, however, been scanty, and in recent years it has been found that increased acid secretion may be present in certain types or in certain stages of gastritis. Information on the gastric acidity of 105 alcohol addicts, all of whom had consumed large quantities of alcohol either daily or periodically over months or years, has been collected by P. M. Joffe and N. Jolliffe.[1] The alcohol test-meal was used, and if free acid was absent in the first three samples, histamine was given in addition. Of the 105 patients examined, 77 men and 28 women, achlorhydria was noted in about one-third; that is, no free acid was secreted after administration of histamine. Of the remainder about half showed a gastric acidity below the average normal value, and half an approximately normal secretion. This incidence of achlorhydria is about three times as high as would normally be expected in a series of control subjects of the same age- and sex-distribution. These figures might at first sight seem to confirm the view that alcohol per se is a frequent cause of achlorhydria, but certain difficulties arise in accepting this explanation. Many of the subjects examined

[1] *Amer. J. med. Sci.* 1937, **193**, 501.

suffered from complications. The authors state, without giving any explanation of what seems a remarkably high incidence, that 26 per cent. had pellagra and 70 per cent. polyneuritis (including 22 also having pellagra). Of those addicts *not* suffering from one or both of these complications only 15 per cent. were found to have achlorhydria, an incidence which is only very slightly higher than might normally be expected—i.e., 12 per cent. Amongst the polyneuritic patients 29 per cent. showed absence of free acid and amongst the pellagrins 52 per cent. The amount of alcohol consumed and the length of time it had been taken did not appear to be concerned in these differences, and nine of those with normal gastric acidity had drunk from 8 to 24 ounces of whisky daily for periods up to 40 years. The association of alcohol excess, achlorhydria, and proved lack of vitamin B was somewhat striking, but other workers have shown that in beriberi achlorhydria is not a frequent finding.

No relationship was found between the degree of anæmia or of liver dysfunction (as far as this could be judged and tested) and the frequency of achlorhydria, and the authors suggest that some factor closely associated with vitamin B may be concerned in the prevention of achlorhydria; this they refer to as the "achlorhydria preventive factor" and regard as distinct from either vitamin B or the pellagra preventive fraction. It is not necessary to postulate such a factor when recognising the importance of dietetic factors in the maintenance of normal gastric secretion, thus lessening the significance of the direct effects of prolonged irritation from abuse of alcohol in reducing this secretion. If a man must drink to excess, it would seem that he will better preserve his gastric acidity if he takes his wine with bran.

THE BLOOD PICTURE IN INFANCY

Mackay's classical study of the hæmoglobin level in infancy, published in 1931,[1] has been followed by similar large-scale investigations in all parts of the world. Two recent surveys, one from Gothenburg and the other from Aberdeen, bring out further important facts about the cause of the so-called nutritional anæmia of infancy. Dr. Nils Faxén,[2] using well-controlled technique and statistical methods of analysis, studied all the red cell elements in 374 infants which he considered were in every-way healthy. They all weighed at least 3000 grammes at birth; they were breast-fed with the addition of vitamins until six or seven months, when mixed feeding was gradually begun; and they all lived at home under the care of visiting nurses from the children's care centre. All children who had had any illness were excluded. His curve for hæmoglobin levels during the first year of life is considerably higher than that of other observers, though he notes the same tendency to a lower level of red cells and hæmoglobin and smaller cell size that has been found by all workers in the second six months. Faxén himself attributes his satisfactory figures to the careful selection of his material, and his children must be regarded as healthy infants living under the best conditions. He found no lowering of hæmoglobin during the winter months, as others have done, and believes this is explained by his exclusion of children showing any infection. The truth of this conclusion is only too obvious from different results obtained by Dr. Fullerton[3] working with less carefully selected children in Aberdeen. He found subnormal hæmoglobin levels in 87 per cent. of 298 infants from poor homes between the age of nine and twenty-three months, and he concludes that this anæmia is due mainly to iron deficiency dependent on low birth-weight, artificial feeding, and infective illness. The part played by even mild infections, originally suggested by Josephs[4] is well brought out. A group of 26 infants aged six to twenty-two months was observed for a year in an institution under excellent dietetic and hygienic conditions. The hæmoglobin level was lowered with unfailing regularity after each infection, however mild; even pyrexia associated with teething was effective. This fall occurred even when iron was already being given and no response to therapy was made until several weeks after pyrexia had subsided. Why fever causes a fall in hæmoglobin is unknown. Possibly the sum of unobserved and mild infections are responsible for the slight fall seen even in Faxén's admirable children. Unlike other workers, Fullerton does not regard maternal iron deficiency as likely to be a significant ætiological factor. From theoretical calculations he decides that this anæmia of infancy cannot justifiably be called "nutritional," since during the first nine months deficiency of iron intake has little effect on the hæmoglobin level. On theoretical grounds alone his conclusion that the importance of a deficient iron intake in infancy can be at present only a matter of conjecture is possibly correct, but the practical fact demonstrated by Mackay remains—namely, that infants given iron gain weight better and resist infections better than children not given iron. Fullerton himself holds that all children should be given medicinal iron after even mild infections. Since mild infections seem inevitable under the present conditions of town life and overcrowding, and the healthy babies fulfilling Faxén's ideal criteria are probably rare in this country, it seems wise to attempt the widespread prophylaxis of the anæmia of infancy, whatever its cause, by the use of medicinal iron.

[1] Mackay, H. M. M., Goodfellow, L., and Hill, A. B. (1931) *Spec. Rep. Ser. med. Res. Coun., Lond.* No. 157.
[2] Faxén, N. (1937) *Acta Pædiatr., Stockh.* **19**, Suppl. 1.
[3] Fullerton, H. W. (1937) *Arch. Dis. Childh.* **12**, 91.
[4] Josephs, H. (1934) *Bull. Johns Hopk. Hosp.* **55**, 259.

FRIENDLY GIVING

"Not only do we help to support the needy by grants of money, food, coal and clothing, by advising them when in difficulties or ill-health, by providing medical or dental attention, invalid comforts and medical appliances, we arrange for holidays, and even for Christmas gifts through our special Fund. We recommend suitable schools for the young, help with fees and outfits and advise as to future careers. We also try to re-construct those lives which have been shattered by bereavement, lack of means and ill-health . . ."

These words are quoted from the annual report of the Ladies' Guild of the Royal Medical Benevolent Fund and the detailed reports of the various committees show how well and truly this work is being carried out. It is a record of personal service of which the guild may well be proud. The hon. visitors have paid more than 225 visits to beneficiaries during the year and the case committee has dealt with 462 persons, while assistance and supervision have been given in the education of 86 boys and girls. The clothes committee reports a successful year with 681 parcels sent to 370 beneficiaries in spite of the extra work entailed by a flood in their premises. Three new branches of the guild have been opened at Weston-super-Mare, East Devon, and Grays Thurrock, and others are in view. But the need is very great and the work of the guild and society is always increasing, since their help is not limited to any

particular district or to those who have previously subscribed to the funds. Subscriptions, donations, and gifts of clothing are therefore urgently required and should be sent to the guild at Tavistock House North, Tavistock-square, London, W.C.1.

INJECTION TREATMENT OF HERNIA

THE treatment of hernia by injection is evidently becoming popular in the United States. Individual clinics are now able to report the results in many hundreds of cases, and it appears that, with carefully standardised technique, the fear of serious complications need no longer be deterrent. The treatment was introduced into the surgical department of the University Hospital of Minnesota in 1931, and in a recent symposium [1] A. F. Bratrud and F. S. McKinney relate their experience of no less than 700 cases of hernia treated during five years. Of these, 300 were selected for statistical study because they had had at least six injections each and had been admitted to the clinic for treatment before 1936. In the greatest number the hernia was indirect inguinal; a few were scrotal, and there were also some indirect and recurrent. In all, 83 per cent. of the patients were cured. Among factors in success the fitting of the truss and the coöperation of the patient in its use rank high. At the Minnesota University Clinic the fitting of a new truss is part of the routine; it has to be worn day and night during treatment, and its use is not discontinued till six months after the last injection. The selection of a sclerosing solution has also been given very careful attention and Bratrud reports that the best results are now obtained with the solution known as Proliferol with the addition of two drops of a phenol-thuja mixture to each cubic centimetre. Proliferol is a distillate of several vegetable drugs to which have been added tannic acid, benzyl alcohol and thymol in various strengths up to 1 per cent. The phenol-thuja mixture contains phenol 50 parts, alcohol 25, and Lloyd's specific tincture of thuja 25. Either solution can be employed alone, or they can be injected alternately or in combination. C. O. Rice of the Minneapolis General Hospital reports favourably on a mild soap solution, which causes less pain and requires no preliminary injection of a local anæsthetic. He claims cures in 379 patients with 445 hernias, no case being pronounced cured until there has been no impulse for six months after the last treatment and until the patient has been without his truss for at least four months. Another preparation used is sodium psylliate, sold under the trade name of Sylnasol; it is a solution of low viscosity that spreads through fascial planes over a wide area.

Martin Biederman [2] of New York classifies the causes of failure under three headings—unsuitability of the truss, failure of coöperation, and unsuitability of the solution—and he points out that all three factors are controllable. The selection of cases still presents some difficulty, especially at this stage, because the protagonists of the method naturally want to keep an eye on their statistics of results. The indirect inguinal hernia gives the best results; but the value of the method is really more apparent in cures of the much more difficult hernias and in cases where operation has repeatedly failed. Opinion seems to be divided as to whether the method is applicable to femoral hernia, and Bratrud holds that femoral and umbilical hernia should not be treated by injection unless a truss completely relieves the symptoms. Sliding hernias and irreducible hernias are not to be treated by injection. Its use for patients in whom operation is dreaded because of respiratory or cardiovascular disease is likely perhaps to make most appeal to surgeons in this country.

Complications have been remarkably few, and the great majority of patients do not require rest in bed, even for a few days. The commonest complication seems to be swelling of the spermatic cord, and fears have been expressed about sterility, but after a special investigation C. E. Read decides that there is no such danger. Atrophy of the testis has not occurred in the Minnesota clinics and strangulation supervened twice only. With faulty technique the sclerosing fluid may be forced into the peritoneal cavity, and lower abdominal pain is a signal that injection should be stopped. Ordinary precautions should preclude the intravenous injection. Excessive local reaction, with sloughing and abscess-formation, does not seem to occur with the use of the solutions now recommended, but as Bratrud says, it must always be borne in mind that there is a definite technique, and that unless this is learned great harm may be done. The placing of the solution at the desired site may not be so easy as [illegible] descriptions suggest. Thus N. N. Crohn [3] say[illegible] he experimented with injections of methyl[illegible] in cases prepared for operation and at the[illegible] attempts was astonished at the failure of t[illegible] solution to be at the expected sites. With[illegible] however, accuracy can be assured. Cro[illegible] the aim of injection should not be to pr[illegible] mass of scar tissue filling a large gap. [illegible] is vulnerable because it is inelastic, a[illegible] a small amount of fibrous tissue at the r[illegible] more likely to give permanent cure, a[illegible] larger scar may give a fallacious sense of se[illegible]

AN IMPROVED TOMOGRAPH

IN thick parts of the body the interpretation of radiograms is often rendered difficult owing to the super-imposition of shadows. This is especially true for the chest, where shadows arising within the lung are partly or completely masked by those cast by the bony and muscular chest wall. Since 1921 attempts have been made with increasing success to photograph a selected plane in the interior with the elimination of all other planes. This technique is now generally known as "tomography" (τεμνειν, to cut), the terms "planigraphy" and "stratigraphy" being also used. The method is based upon the principle of similar triangles. The distance from the film to the plane or stratum which it is desired to investigate is first determined. During the exposure tube and film move in opposite directions, being coupled so that their movement takes place about a pivot in the selected plane. The result is that objects in this plane are sharply outlined on the film since they are projected on to the same part of the film during the excursion of the tube and film. Objects in other planes are blurred in varying degrees up to complete extinction according to their distance from the plane selected. Thus, for example, a clear view of the pulmonary vessels can be obtained with complete elimination of the shadows of the ribs. In Grossmann's apparatus, a photograph of which was reproduced in a recent article [4] in our own columns by McDougall, the tube moves at the upper end of a pendulum while the film moves at the lower. Twining has now ingeniously devised a much simpler

[1] *Ann. Surg.* March, 1937, p. 321.
[2] *Med. Rec.* March 17th, 1937, p. 239.
[3] *J. Amer. med. Ass.* Feb. 13th, 1937, p. 540.
[4] McDougall, J. B. (1936) *Lancet*, **2**, 185.

and less expensive method.[5] This is an adaptation of the movement of the tube and of the Potter-Bucky under-carriage already provided in the X ray couch in common use. Tube and under-carriage are coupled so as to provide the movement required. The tomograms published by Twining appear to us to be at least the equal of those of Grossmann. At this stage in its development the ultimate value of tomography in practice cannot be assessed. Its application must however necessarily be limited by the fact that few structures lie in one plane for any distance. Nevertheless sufficient progress has been made to establish its worth in certain situations, notably the lungs, where for instance it can reveal an abscess invisible in the ordinary radiogram. It also promises to be of value in certain hitherto inaccessible regions of the skull and spine despite the fact that it fails to exhibit the cancellous tissue of bone. The interpretation of tomograms will however always call for judgment and experience in a high degree.

THE MORTALITY OF JEWS

IN the literature of racial susceptibilities a good ... of attention has been paid to the incidence of ... and mortality from different causes amongst ... An addition to this subject matter has ... by Drs. Franz Goldmann and Georg ... have published a careful study [6] of the ...perienced by Jews in Berlin during two ...ars, 1924–26 and 1932–34.

...ier years population figures are available ...age so that death-rates at ages and ...ates can be calculated. The importance ... is shown by the fact that although the ...-rate of the Jewish population is about ... higher than the rate of the total popula... ...erlin, their standardised rate is 10 per cent. The Jewish population contains propor...ately more persons at the two extremes of life, where mortality is highest. In the latter years, 1932–34, only the total populations are available so that the comparisons of the mortality of Jews and non-Jews are limited to crude rates which the authors interpret with proper caution. The death-rates at ages in 1924–26 from all causes show the Jews in a very favourable position in the first few years of life, holding a slight advantage from ages 15 to 40, but unfavourably placed at ages over 50. Their infant mortality-rate is particularly low, 49 per 1000 live births in 1932–34, compared with the figure of 64 for the total population. From infectious diseases their mortality experience is considerably more favourable than that of the non-Jewish population, their advantage being particularly striking in the death-rate from tuberculosis. According to the figures for 1924–26 the standardised rate of the Jews from this cause is less than half the corresponding rate of the non-Jews.

The crude rates of 1932–34 also favour the Jews but to a much smaller extent. This narrowing of the difference in a short space of time between the two races suggests to the authors that the lower mortality of Jews is likely to have been due rather to more favourable economic circumstances amongst the Jews than to a greater degree of immunity peculiar to the race. From cancer they show a slightly lower death-rate than the non-Jews and some considerable differences in the sites mainly concerned. For instance, in the total male population 42 per cent. of the deaths were referred to the œsophagus and stomach, in the Jews only 27 per cent.; in the total female population 19 per cent. of the deaths were referred to the uterus, in the Jews only 9 per cent. The higher death-rate of the Jews from diabetes, which has often been commented upon, is confirmed by these figures. The standardised death-rate of males exceeds the rate of all males by 42 per cent., of females by 75 per cent. On the other hand the Jewish rates at under 40 are below those of the total population; it is not until age 50 is reached that their experience becomes unfavourable and at ages over 60 the rates of both sexes are approximately double the rates of the general population of Berlin. They also show distinctly high death-rates from diseases of the circulatory system and arterio-sclerosis, and a relatively unfavourable experience as regards suicide. Between 1924–26 and 1932–34 their crude death-rate from suicide has increased to an appreciably greater extent than is apparent amongst the non-Jewish population.

How far these various differences can be ascribed to racial characteristics it is difficult to determine. Economic status, personal hygiene, occupations, and customs may all play their parts. Goldmann and Wolff fully recognise this and plead for the further collection of data in Palestine and elsewhere to aid in the interpretation of their own excellent analysis.

EXCESSIVELY RAPID HEARTS

FOR the human ventricle to beat at a rate of 300 per minute seems to be very rare; only three cases of a ventricular rate exceeding 300 have been reported and only sixteen of a rate above 280. Experimenting with animals, Lewis and others found that when the auricles of the mammalian heart were stimulated to rates higher than 300 per minute, the ventricles did not respond and dropped beats or a two-to-one rhythm ensued. Lyon [1] reports the case of a negro infant, aged 4½ weeks, with acute streptococcal meningitis, in which the ventricular rate, recorded electrocardiographically ten days before death, was from 310 to 313 per minute. At autopsy the heart appeared normal to the naked eye and, microscopically, it showed no sign of infection or fibrosis. Copies of the electrocardiogram were submitted to a number of cardiologists, both in America and in Europe, nineteen of whom diagnosed paroxysmal auricular flutter with 1 to 1 block and intraventricular block due to myocardial fatigue. Six others agreed but could not with certainty rule out the possibility of some other diagnosis. Six others diagnosed paroxysmal ventricular tachycardia, and one, paroxysmal auricular tachycardia. In 12 of the 16 cases collected from the writings, the outcome was a return to normal rate; in one of these, a case of exophthalmic goitre, the return to normal followed thyroidectomy. Of the remaining 4, the outcome in one case was not stated and 2 other patients died. Of these, one who died on the third day after the onset proved at autopsy to have a widely patent foramen ovale and congestion of the cardiac vessels; in the other, who died a year after the onset, myocarditis, dilatation, and hypertrophy were found post mortem. The type of arrhythmia was diagnosed as paroxysmal auricular tachycardia in 11 of these cases, as auricular flutter in 4, and as paroxysmal ventricular tachycardia in the remaining case. It seems that, in the absence of pre-existing heart disease or congenital abnormality or other grave

[5] Twining, E. W. (1937) *Brit. J. Radiol.* **10**, 332.

[6] Tod und Todesursachen unter den Berliner Juden. Reichsvertretung der Juden in Deutschland. Berlin-Charlottenburg, Kantstr. 158.

[1] Lyon, J. A., *J. Amer. med. Ass.* April 24th, 1937, p. 1393.

particular district or to those who have previously subscribed to the funds. Subscriptions, donations, and gifts of clothing are therefore urgently required and should be sent to the guild at Tavistock House North, Tavistock-square, London, W.C.1.

INJECTION TREATMENT OF HERNIA

THE treatment of hernia by injection is evidently becoming popular in the United States. Individual clinics are now able to report the results in many hundreds of cases, and it appears that, with carefully standardised technique, the fear of serious complications need no longer be deterrent. The treatment was introduced into the surgical department of the University Hospital of Minnesota in 1931, and in a recent symposium [1] A. F. Bratrud and F. S. McKinney relate their experience of no less than 700 cases of hernia treated during five years. Of these, 300 were selected for statistical study because they had had at least six injections each and had been admitted to the clinic for treatment before 1936. In the greatest number the hernia was indirect inguinal; a few were scrotal, and there were also some indirect and recurrent. In all, 83 per cent. of the patients were cured. Among factors in success the fitting of the truss and the coöperation of the patient in its use rank high. At the Minnesota University Clinic the fitting of a new truss is part of the routine; it has to be worn day and night during treatment, and its use is not discontinued till six months after the last injection. The selection of a sclerosing solution has also been given very careful attention and Bratrud reports that the best results are now obtained with the solution known as Proliferol with the addition of two drops of a phenol-thuja mixture to each cubic centimetre. Proliferol is a distillate of several vegetable drugs to which have been added tannic acid, benzyl alcohol and thymol in various strengths up to 1 per cent. The phenol-thuja mixture contains phenol 50 parts, alcohol 25, and Lloyd's specific tincture of thuja 25. Either solution can be employed alone, or they can be injected alternately or in combination. C. O. Rice of the Minneapolis General Hospital reports favourably on a mild soap solution, which causes less pain and requires no preliminary injection of a local anæsthetic. He claims cures in 379 patients with 445 hernias, no case being pronounced cured until there has been no impulse for six months after the last treatment and until the patient has been without his truss for at least four months. Another preparation used is sodium psylliate, sold under the trade name of Sylnasol; it is a solution of low viscosity that spreads through fascial planes over a wide area.

Martin Biederman [2] of New York classifies the causes of failure under three headings—unsuitability of the truss, failure of coöperation, and unsuitability of the solution—and he points out that all three factors are controllable. The selection of cases still presents some difficulty, especially at this stage, because the protagonists of the method naturally want to keep an eye on their statistics of results. The indirect inguinal hernia gives the best results; but the value of the method is really more apparent in cures of the much more difficult hernias and in cases where operation has repeatedly failed. Opinion seems to be divided as to whether the method is applicable to femoral hernia, and Bratrud holds that femoral and umbilical hernia should not be treated by injection unless a truss completely relieves the symptoms. Sliding hernias and irreducible hernias are not to be treated by injection. Its use for patients in whom operation is dreaded because of respiratory or cardiovascular disease is likely perhaps to make most appeal to surgeons in this country.

Complications have been remarkably few, and the great majority of patients do not require rest in bed, even for a few days. The commonest complication seems to be swelling of the spermatic cord, and fears have been expressed about sterility, but after a special investigation C. E. Read decides that there is no such danger. Atrophy of the testis has not occurred in the Minnesota clinics and strangulation supervened twice only. With faulty technique the sclerosing fluid may be forced into the peritoneal cavity, and lower abdominal pain is a signal that injection should be stopped. Ordinary precautions should preclude the intravenous injection. Excessive local reaction, with sloughing and abscess-formation, does not seem to occur with the use of the solutions now recommended, but as Bratrud says, it must always be borne in mind that there is a definite technique, and that unless this is learned great harm may be done. The placing of the solution at the desired site may not be so easy as the descriptions suggest. Thus N. N. Crohn [3] says that he experimented with injections of methylene-blue in cases prepared for operation and at the first few attempts was astonished at the failure of the injected solution to be at the expected sites. With experience, however, accuracy can be assured. Crohn says that the aim of injection should not be to produce a large mass of scar tissue filling a large gap. Scar tissue is vulnerable because it is inelastic, and repair by a small amount of fibrous tissue at the right place is more likely to give permanent cure, although the larger scar may give a fallacious sense of security.

AN IMPROVED TOMOGRAPH

IN thick parts of the body the interpretation of radiograms is often rendered difficult owing to the super-imposition of shadows. This is especially true for the chest, where shadows arising within the lung are partly or completely masked by those cast by the bony and muscular chest wall. Since 1921 attempts have been made with increasing success to photograph a selected plane in the interior with the elimination of all other planes. This technique is now generally known as "tomography" (τεμνειν, to cut), the terms "planigraphy" and "stratigraphy" being also used. The method is based upon the principle of similar triangles. The distance from the film to the plane or stratum which it is desired to investigate is first determined. During the exposure tube and film move in opposite directions, being coupled so that their movement takes place about a pivot in the selected plane. The result is that objects in this plane are sharply outlined on the film since they are projected on to the same part of the film during the excursion of the tube and film. Objects in other planes are blurred in varying degrees up to complete extinction according to their distance from the plane selected. Thus, for example, a clear view of the pulmonary vessels can be obtained with complete elimination of the shadows of the ribs. In Grossmann's apparatus, a photograph of which was reproduced in a recent article [4] in our own columns by McDougall, the tube moves at the upper end of a pendulum while the film moves at the lower. Twining has now ingeniously devised a much simpler

[1] *Ann. Surg.* March, 1937, p. 321.
[2] *Med. Rec.* March 17th, 1937, p. 239.
[3] *J. Amer. med. Ass.* Feb. 13th, 1937, p. 540.
[4] McDougall, J. B. (1936) *Lancet*, **2**, 185.

and less expensive method.[5] This is an adaptation of the movement of the tube and of the Potter-Bucky under-carriage already provided in the X ray couch in common use. Tube and under-carriage are coupled so as to provide the movement required. The tomograms published by Twining appear to us to be at least the equal of those of Grossmann. At this stage in its development the ultimate value of tomography in practice cannot be assessed. Its application must however necessarily be limited by the fact that few structures lie in one plane for any distance. Nevertheless sufficient progress has been made to establish its worth in certain situations, notably the lungs, where for instance it can reveal an abscess invisible in the ordinary radiogram. It also promises to be of value in certain hitherto inaccessible regions of the skull and spine despite the fact that it fails to exhibit the cancellous tissue of bone. The interpretation of tomograms will however always call for judgment and experience in a high degree.

THE MORTALITY OF JEWS

IN the literature of racial susceptibilities a good deal of attention has been paid to the incidence of disease and mortality from different causes amongst the Jews. An addition to this subject matter has been made by Drs. Franz Goldmann and Georg Wolff, who have published a careful study [6] of the mortality experienced by Jews in Berlin during two periods of years, 1924–26 and 1932–34.

For the earlier years population figures are available by sex and age so that death-rates at ages and standardised rates can be calculated. The importance of the latter is shown by the fact that although the crude death-rate of the Jewish population is about 20 per cent. higher than the rate of the total population of Berlin, their standardised rate is 10 per cent. below. The Jewish population contains proportionately more persons at the two extremes of life, where mortality is highest. In the latter years, 1932–34, only the total populations are available so that the comparisons of the mortality of Jews and non-Jews are limited to crude rates which the authors interpret with proper caution. The death-rates at ages in 1924–26 from all causes show the Jews in a very favourable position in the first few years of life, holding a slight advantage from ages 15 to 40, but unfavourably placed at ages over 50. Their infant mortality-rate is particularly low, 49 per 1000 live births in 1932–34, compared with the figure of 64 for the total population. From infectious diseases their mortality experience is considerably more favourable than that of the non-Jewish population, their advantage being particularly striking in the death-rate from tuberculosis. According to the figures for 1924–26 the standardised rate of the Jews from this cause is less than half the corresponding rate of the non-Jews.

The crude rates of 1932–34 also favour the Jews but to a much smaller extent. This narrowing of the difference in a short space of time between the two races suggests to the authors that the lower mortality of Jews is likely to have been due rather to more favourable economic circumstances amongst the Jews than to a greater degree of immunity peculiar to the race. From cancer they show a slightly lower death-rate than the non-Jews and some considerable differences in the sites mainly concerned. For instance, in the total male population 42 per cent. of the deaths were referred to the œsophagus and stomach, in the Jews only 27 per cent.; in the total female population 19 per cent. of the deaths were referred to the uterus, in the Jews only 9 per cent. The higher death-rate of the Jews from diabetes, which has often been commented upon, is confirmed by these figures. The standardised death-rate of males exceeds the rate of all males by 42 per cent., of females by 75 per cent. On the other hand the Jewish rates at under 40 are below those of the total population; it is not until age 50 is reached that their experience becomes unfavourable and at ages over 60 the rates of both sexes are approximately double the rates of the general population of Berlin. They also show distinctly high death-rates from diseases of the circulatory system and arterio-sclerosis, and a relatively unfavourable experience as regards suicide. Between 1924–26 and 1932–34 their crude death-rate from suicide has increased to an appreciably greater extent than is apparent amongst the non-Jewish population.

How far these various differences can be ascribed to racial characteristics it is difficult to determine. Economic status, personal hygiene, occupations, and customs may all play their parts. Goldmann and Wolff fully recognise this and plead for the further collection of data in Palestine and elsewhere to aid in the interpretation of their own excellent analysis.

EXCESSIVELY RAPID HEARTS

FOR the human ventricle to beat at a rate of 300 per minute seems to be very rare; only three cases of a ventricular rate exceeding 300 have been reported and only sixteen of a rate above 280. Experimenting with animals, Lewis and others found that when the auricles of the mammalian heart were stimulated to rates higher than 300 per minute, the ventricles did not respond and dropped beats or a two-to-one rhythm ensued. Lyon [1] reports the case of a negro infant, aged 4½ weeks, with acute streptococcal meningitis, in which the ventricular rate, recorded electrocardiographically ten days before death, was from 310 to 313 per minute. At autopsy the heart appeared normal to the naked eye and, microscopically, it showed no sign of infection or fibrosis. Copies of the electrocardiogram were submitted to a number of cardiologists, both in America and in Europe, nineteen of whom diagnosed paroxysmal auricular flutter with 1 to 1 block and intraventricular block due to myocardial fatigue. Six others agreed but could not with certainty rule out the possibility of some other diagnosis. Six others diagnosed paroxysmal ventricular tachycardia, and one, paroxysmal auricular tachycardia. In 12 of the 16 cases collected from the writings, the outcome was a return to normal rate; in one of these, a case of exophthalmic goitre, the return to normal followed thyroidectomy. Of the remaining 4, the outcome in one case was not stated and 2 other patients died. Of these, one who died on the third day after the onset proved at autopsy to have a widely patent foramen ovale and congestion of the cardiac vessels; in the other, who died a year after the onset, myocarditis, dilatation, and hypertrophy were found post mortem. The type of arrhythmia was diagnosed as paroxysmal auricular tachycardia in 11 of these cases, as auricular flutter in 4, and as paroxysmal ventricular tachycardia in the remaining case. It seems that, in the absence of pre-existing heart disease or congenital abnormality or other grave

[5] Twining, E. W. (1937) *Brit. J. Radiol.* **10**, 332.

[6] Tod und Todesursachen unter den Berliner Juden. Reichsvertretung der Juden in Deutschland. Berlin-Charlottenburg, Kantstr. 158.

[1] Lyon, J. A., *J. Amer. med. Ass.* April 24th, 1937, p. 1393.

extracardiac disease, an excessively rapid heart-beat is not in itself of serious import; but how long elapsed before normal rates were re-established in these cases, nor how long they remained normal, is not stated.

GASTROSTOMY

RAPID deterioration after gastrostomy is one of the disappointments of surgery. It is all the more regrettable if the gastrostomy is part of an operation from which a cure is hoped, as for example in radical excision of the œsophagus. But even when gastrostomy is purely palliative in intent, permission to perform it has been obtained by promises to the patient that he will feel better when properly fed. Discussing the reasons for failure, E. S. J. King[1] concludes that gastrostomy should not be attempted if the patient is in an advanced state of dehydration and malnutrition, especially in the presence of pulmonary and circulatory complications. This contra-indication does not apply to cases of sudden complete œsophageal obstruction, but to chronic cases in which the patient has gone steadily downhill. Death from infection of the wound and from peritonitis may follow the operation, and it only hastens an end already not far off. If parenteral administration of fluid does not bring distinct improvement in the general condition, gastrostomy is best avoided. The nature of the operation performed is also important. King divides all types of gastrostomy into two classes—those that result in a narrow track between the stomach and the skin surface, lined (in part at least) by granulation tissue, and those that give a track lined by gastro-intestinal mucosa. Gastrostomies of the first class are always liable to stenosis of the opening, and if the tube is left out, for reasons of comfort or because normal swallowing for a time returns, its reinsertion may be difficult. In the Janeway gastrostomy, which King has found most satisfactory, the opening is fashioned from a flap of stomach wall, cut in the transverse axis of the stomach, with its base at the greater curvature. The operation is not severe, it can be performed under local anæsthesia, and need not take longer than half an hour. The preoperative administration of fluid has already been mentioned, and King is keen about it. By far the most important consideration, however, is the choice of a suitable diet. He says, in effect, that many gastrostomy patients are suffering from severe starvation. It is necessary that the diet requirements in calories should be estimated and that the estimate should be adhered to. There is a tendency to overload the diet with fat, and to omit certain essential amino-acids. Salts may be deficient, and it is not unknown for a patient fed by gastrostomy to develop scurvy or pellagra. In King's experience of 50 gastrostomies, the administration of solid food, through a grease-gun, has had such obvious advantages that he strongly advocates it. The completeness of the diet is much more easily assured; the food is more readily prepared when the patient goes home; and the meals provide a degree of gastric comfort quite different from anything obtainable from a fluid diet. The importance of adding saliva and of controlling the acidity of the stomach contents are points he mentions.

THE PHYSIOLOGY OF SLEEP

ALL will recognise the fascination of the subject Prof. E. D. Adrian, F.R.S., chose for his John Mallet Purser lecture at Trinity College, Dublin, last week. The fact that we need to sleep—that the central nervous system must cease work after a time—is not in itself surprising; but very remarkable is the process of falling asleep, and still more (he thinks) that of waking up again. The behaviour of different animals varies according to whether they have one rest period or several: the monophasic ringed snake rises at noon and goes to bed at 1.30 P.M.; the polyphasic rabbit has 16–20 regularly spaced rest periods in the twenty-four hours. Babies are polyphasic, adults monophasic; but after the first few hours of deep sleep adults have several lighter periods. As the brain remains at rest in normal sleep it becomes more and more capable of activity, whereas the narcotised animal does not get the same refreshment. "What happens in the brain," asked Prof. Adrian, "when we cease dreaming and become our own masters again? Is there a particular region which comes into play to establish full integration, or is the half-awake state due to a general low level of excitability in the cortex?" Naïve introspection suggests that there is some unifying part of the mind which is in action only when we are wide awake, and electrical methods should make it possible eventually to record the activity of different parts of the brain from moment to moment. How is this awareness brought into action when we are asleep? A loud noise in the street may not arouse us; but a child's cry at the end of the passage may make us instantly awake. Somewhere then, as Prof. Adrian put it, there must be a controlling region which decides the relative importance of the different incoming messages, and the tendency is to locate this in the diencephalon. "The induction of the sleepy state by stimulating the diencephalon shows that a change in this region can diminish the general level of nervous integration in the brain. From this it is a short step to the idea of a diencephalic centre regulating the flow of impulses to the cortex, directing attention when the brain is awake—in fact a region specially concerned with the neural activities which are essential to consciousness." He quoted Penfold as pointing out that the neurosurgeon can remove large areas from the cortex of conscious patients without their being aware of any change, whereas lesions of the diencephalon commonly involve a total loss of consciousness. The cortex judges whether the noise is important; the diencephalon, if need be, spreads the neural activity which "wakes" the sleeper. Hess, however, has shown that stimulation of the diencephalon will produce not increased vigilance but sleep. The question arises whether sleep is "a state in which the central nervous system has been reduced to a passive inactivity which tends to perpetuate itself," or whether there is not a constant activity in one region maintaining an inhibition everywhere else.

Prof. Adrian's lecture will appear in due course in the *Irish Journal of Medical Science*.

WE publish on another page an account of the evacuation of Basque children from Bilbao last week, written by the two doctors sent to Spain by the National Joint Committee for Spanish Relief. The committee, which has undertaken the care of the children in this country, may be addressed at 35, Marsham-street, Westminster, London, S.W.1.

THE Minister of Health has announced the personnel of the interdepartmental committee he has set up, under the chairmanship of Mr. Norman Birkett, K.C., to inquire into the prevalence of abortion and to consider what steps can be taken to mitigate its dangers. The names are given in our Parliamentary Intelligence (p. 1313). They include two medical women and four medical men.

[1] *Brit. J. Surg.* April, 1937, p. 749.

PUBLIC HEALTH

RAPID DETECTION OF *B. TUBERCULOSIS* IN MILK

BY MARY L. COWAN MAITLAND, M.B. Toronto

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THE routine examination of milk for the presence of tubercle bacilli is done in this laboratory by biological test—i.e., inoculation of guinea-pigs—or by microscopic examination or by both methods. All "bulk" samples of milk—i.e., mixed milk from a herd or part of a herd—are spun in 50 c.cm. amounts for 15 minutes at 3500–4500 r.p.m., and the deposits inoculated into two guinea-pigs. If the sample of milk has come from a single cow, a film is made from the deposit before the remainder is inoculated into two guinea-pigs. This film is stained and examined microscopically. Cowan and Maddocks (1935) found that tubercle bacilli when appearing in these films were usually associated with a particular kind of cell group. This point has been emphasised by Torrance (1927), Matthews (1931), and Davies (1933). They found it quicker, easier, and more efficient to examine the films for cell groups and then to examine these for tubercle bacilli.

I have attempted to increase still more the ease and efficiency of microscopic examination of milk films for tubercle bacilli. In all cases the films were examined under the low-power objective ($\frac{2}{3}$ in.) and, if any cell groups were seen, these were examined under the oil-immersion objective to see whether they contained tubercle bacilli. The tuberculous cell groups are made up of pale-staining cells larger than other cells in milk, and rather loosely piled up. The group may have a definite outline, though this is not always true since other types of cells may overlie the large pale cells, but the latter are the distinctive feature.

METHOD

Method of obtaining a deposit from milk for microscopic examination.—Milks known to contain tubercle bacilli were examined after varying treatments.

(*a*) Acid and alkali of various strengths were mixed with the sediment after the milk was centrifuged in an attempt to break up the deposits. It was found these did not make examination easier but rather destroyed cell groups.

(*b*) The milk was heated at about 65° C. for about 20 minutes before centrifuging but this coagulated the cell groups and decreased the number of tubercle bacilli found.

(*c*) Milk was left in the ice-chest overnight and different layers spun—i.e., cream, milk below cream, and milk at the bottom of the bottle were spun separately. There was no regular difference in the number of tubercle bacilli in the different layers. This may have been due to mechanical difficulty of getting the layers definitely separated.

(*d*) Matthews (1931) reported the results of an examination of 500 samples of milk for the presence of tubercle bacilli. He spun the milk comparatively slowly for a short time and was very successful in finding the tubercle bacilli microscopically and the tubercle bacilli were associated with cell groups such as Cowan and Maddocks found later. I therefore decided to use varying times and speeds for spinning milk known to contain tubercle bacilli and to compare the films from each. The times were 2, 5 10, and 15 minutes at speeds of 1000, 2500, and 4000 r.p.m. I found that a film made from a deposit after spinning a milk for a short time at low speed was much easier to examine than a film from a deposit after a long rapid spin. The cell groups came down at the lower speeds and there was less other material in the films. As the deposits from different milks vary greatly in amount and consistence, many samples had to be examined before deciding on the approximate time and rate of spinning to give the best average results when films were made from these deposits. This seemed to be between 2 and 5 minutes at 1000–2500 r.p.m.

Method of making films from deposits from milk.—Milk which was known to contain tubercle bacilli was centrifuged and films made from the deposit in various ways.

(*a*) The milk was poured off after centrifuging and the drops from the sides of the tube allowed to mix with the deposit before making the film.

(*b*) The milk was poured off and the centrifuge tube held inverted while films were made from the deposit, allowing no milk to mix with it.

(*c*) A capillary pipette was used to transfer the deposit from the tube to the slide.

(*d*) A loop bent at a right angle was used to transfer the deposit from the tube to the slide.

(*e*) The deposit placed on the slide was spread with the loop.

(*f*) The deposit was spread on the slide with another glass slide as in making a blood film.

The films most easily and efficiently examined were those made by holding the tube with the deposit in it, inverted, while a loop bent at a right angle transferred the deposit to a slide (two loopfuls), this deposit then being spread with another slide. Clean new slides were used in every case.

Preparation of films for microscopical examination.—The films were allowed to dry in the air for at least half an hour and then fixed in a flame—not too hot. After cooling they were placed in alcohol and ether (equal parts) for 15 minutes and then washed with ether to get rid of the fat; they were then stained in steaming carbol-fuchsin for 8 min., washed in water, decolorised in 3 per cent. hydrochloric acid in alcohol for 3 min., washed in water, decolorised in fresh acid-alcohol for 3 min., washed in water, counterstained with Löffler's methylene-blue for 2 min. and washed well with water before drying in the air.

In staining large numbers of films simultaneously it has been found useful to put the slides into glass slide-holders and each solution into a large photographic tray, with the exception of the carbol-fuchsin which is put into a Staybrite steel vessel to be heated over a gas-ring. Each holder contains 10 slides and each tray will take 9 holders so that 90 films can be stained at one time. All the solutions can be poured back into bottles and used repeatedly.

These methods were developed by working with milk which was known to contain tubercle bacilli. I decided to try them with milk which came into the laboratory for routine examination.

Eighty-five samples of milk from single cows were spun for 3 min. at 1000 r.p.m. and also for 3 min. at 2500 r.p.m. as well as by the routine examination for 15 min. at 3500 r.p.m. The deposits after

* This work has been supported and made possible by a grant from the Milk Marketing Board which is gratefully acknowledged.

spinning for 3 min. at 2500 r.p.m. gave better films on the whole than the slower spinning but the films from both these were definitely easier to examine than the films made after the routine method of spinning for 15 min. at 3500 r.p.m. The slowest spinning was discontinued and 195 more samples of milk were examined using slow spinning and fast spinning. Of these samples 24 were found to contain tubercle bacilli by guinea-pig inoculation, 15 were found to contain tubercle bacilli by microscopic examination after slow spinning for a short time, 13 were found to contain tubercle bacilli by microscopic examination after fast spinning for a longer time.

It was thus evident that deposits from milk after spinning for 3 min. at 2500 r.p.m. were more easily examined and more frequently found to contain tubercle bacilli than deposits from milk after fast spinning for a longer time. The former was therefore adopted as a routine.

Quarter samples.—Matthews (direct communication) always examined milk from each quarter separately of the udder of a cow. Thus there was no dilution of the milk containing the tubercle bacilli and so the chance of finding them microscopically was increased. I have been able to examine microscopically a very few samples of milk from each quarter of the udder as well as a mixed sample from the whole udder, but there was no doubt that the films from the "quarter samples" were more easily and quickly examined than those from a whole udder sample of the same cow.

Examination of films.—In the foregoing description of a method for the microscopic examination of milk, stress has been put on "ease" as well as "efficiency," since, if the method was to be applied to routine examination of milk, which would involve a very great number of films, it was necessary to make the final examination by microscope as easy as possible. It takes slightly longer to spread a deposit with a glass slide than with a loop, but in the former case the cell groups tend to accumulate around the edges of the film so that under the microscope the edges can be examined first and, if there are no cell groups in this part, the slide does not need further attention; if they are there, they are found quickly and can be examined for tubercle bacilli.

Again, if the fat is not removed from the films before staining, much time is lost when examining the films under the microscope because there are many red-stained particles which are fat and not tubercle bacilli and cause confusion.

With the fat removed and the films spread evenly so that the cell groups are more numerous at the edges, it is usually possible to examine 40 films in an hour without difficulty.

As stated above, the films are examined with a low-power objective for the presence of tuberculous cell groups and only these cell groups are examined with the oil-immersion lens for tubercle bacilli. The general description of these cell groups has been given but the best way of becoming familiar with them is by the study of films made from milk known to contain tubercle bacilli. When beginning to examine milk that may or may not contain tubercle bacilli, it would be of great advantage to inoculate guinea-pigs with deposits from milk which show microscopically a grouping of cells about which the observer is dubious as to whether they constitute a true tuberculous cell group. By comparing the biological findings with the microscopic appearance confidence in differentiation is established. My own experience has been that, in examining quarter samples, when tuberculous cell groups are present it is almost always possible to find tubercle bacilli in some of them.

ROUTINE MICROSCOPIC EXAMINATION OF QUARTER SAMPLES

First series.—Having found a technique by which it was possible to make films from milk which could be easily and quickly examined microscopically I decided to try the efficiency of the method when used in a practical way. It was only by the keen coöperation of Mr. Locke, chief veterinary officer of Manchester, that this series was possible.

When he received a report, after guinea-pig inoculation, that milk from a farm supplying Manchester contained tubercle bacilli, he obtained quarter samples of milk from each cow on this farm when possible. Such samples have been examined from 36 farms, using the microscopic method described above. These are the results.

(*a*) On 11 farms no cow was found to give milk containing tubercle bacilli or cell groups indicating udder tuberculosis. These results have been confirmed by inoculation into guinea-pigs in 6 cases. There was a history of the sale of a cow or cows from each farm since the taking of the original sample which gave a positive biological test for tubercle bacilli.

(*b*) From each of 2 farms milk from 1 cow was found to contain cell groups but no tubercle bacilli. It was possible to get repeat samples from one of these cows and in these tubercle bacilli were found as well as cell groups. No further sample could be obtained from the other cow but the local veterinary officer found tubercle bacilli in the milk by microscopic examination.

(*c*) From 21 farms 1 cow and from 2 farms 2 cows were found to give milk containing tubercle bacilli in films. These findings were confirmed by inoculation of the milk into a guinea-pig or by post-mortem examination of the cow or by both methods. The cows giving milk in which tubercle bacilli were found by microscopic examination were removed from 18 of these farms; the milk from the cows remaining was found to have no tubercle bacilli as tested by guinea-pig inoculation. The results of the test of the milk from 4 farms is not yet available and from 1 farm it was impossible to get a sample from the remaining cows.

Second series.—Through the kind coöperation of Mr. Amoss of Haslingden the milk from a second series of 26 farms was examined microscopically. In this series the milk had not been previously tested in any way.

Quarter samples were taken from each cow and examined as described above. From each of 2 farms 2 cows were found to give milk containing tubercle bacilli. In these 4 cases the milk was tested later by guinea-pig inoculation and found to produce tuberculosis. Bulk samples from the remaining cows on each farm showed no tubercle bacilli when tested biologically.

Bulk samples of the milk from 16 of the other 24 farms were tested in guinea-pigs and found to have no tubercle bacilli. The negative microscopic results from the milk of the other 8 farms were unfortunately not checked by guinea-pig inoculation.

COMMENT

To sum up, quarter samples have been examined microscopically from approximately 950 cows and in 1 case only has the finding not been the same as the result from biological examination of the milk

or post-mortem examination of the cow. This was the case referred to above in which cell groups were found microscopically but no tubercle bacilli, although these were found by another examiner. No false positive results have so far been obtained.

Thus it would seem that the microscopic test for tubercle bacilli in milk, when it is done on quarter samples from individual cows, is very reliable. All films have been made from the milk within twelve hours after the samples were taken. This has only been possible by close coöperation between the field and laboratory workers and we do not know how successful the method would be if the milk were delayed in transit. Some samples of tuberculous milk have been kept in the ice-chest for 24 hours and re-examined. The impression is that some cell groups disintegrate, but in no case has it been difficult to confirm the finding made on the fresh sample.

The value of a quick reliable method to diagnose tubercle bacilli in milk is obvious from the point of view of farmer, veterinary inspector, and consumer. A particularly careful clinical examination detected the infected cow in 66 per cent. of cases on the 36 farms in the first series reported above. The average number detected by the usual clinical examination is probably lower, and many cows with non-tuberculous mastitis are mistakenly suspected. Therefore, in at least 33 per cent. of farms visited for inspection the infected cow is missed, and, after waiting six weeks for a report of a biological test, the farm has to be visited again and more samples taken, whereas it is possible to examine microscopically the milk from a whole herd in 48 hours.

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Torrance, H. L. (1927) *Ibid*, **7**, 875.

The Atmosphere of Halifax

THROUGHOUT 1935 monthly records of deposited atmospheric pollution were obtained at five stations in Halifax and the results are discussed in the annual report of Dr. G. C. F. Roe, the medical officer of health for the borough. At the Wade-street station, in the centre of the town, more than twice the quantity of insoluble solids was deposited than at West View Park, 1½ miles to the west. There is not such an obvious difference in the amount of soluble solids. The influence of rain in bringing down soluble solids is well shown in diagrams, as is the amount of daylight which the centre of the city loses by reason of its hazy atmosphere. In 1935 there was an increase in deposit of more than 25 per cent. over 1934. This is explained partly by the greater rainfall in the former year and partly by the better trade conditions resulting in more factory smoke. Dr. Roe comments on the unskilful way in which the boilers of many factories are stoked and hopes that employers will not only allow but encourage their employees to attend the classes of instruction in stoking provided by the local education authority. As regards domestic smoke, the increased use of gas, electricity, and solid smokeless fuels does not appear to have had much effect, but this may have been overshadowed by the large number of new houses built during the year. Dr. Roe emphasises that if full use is to be made of smokeless appliances, adequate supplies of smokeless fuel must be available at reasonable cost and the public must get rid of what he regards as an obsession—that "there is nothing like a coal fire."

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. E. Moxon-Browne to *Barham* as Fleet M.O., and as Specialist in Hygiene (on transfer of flag).

Surg. Comdrs. R. W. Higgins to *Warspite*, and R. W. Mussen to *Malaya* (on recommg.).

Surg. Lt.-Comdrs. F. W. Gayford to *Malaya* (on recommg.); L. P. Spero to *Devonshire*; C. H. Egan to *Shropshire*; and E. R. P. Williams to R.N.B., Chatham, and R.M. Infirmary, Deal.

Surg. Lts. P. G. Stainton to *Enchantress*; M. G. Ross to *Pembroke* for R.M. Infirmary, Deal; and I. C. Macdonald to *Pembroke* for R.N. Hospl., Chatham.

To be Surg. Lts. (D): F. B. Gamblen and J. B. Knight.

Surg. Lts. (D) G. P. Pearse to *Wildfire*; A. G. K. Hoberlein to *Devonshire*; W. L. Mountain to *Ramillies*; S. R. Wallis to *Victory* for R.N.B.; and D. N. Williamson to *Malaya*.

The following have been appointed Admiralty Surgeons and Agents: Mr. R. A. M. Humphrey, Beer, East Devon; Mr. G. Young, of Redcar, at Coatham; Mr. E. Gallop, of Vincent-square, S.W.1, for London District No. 15 (Westminster, Victoria, &c.); and Mr. J. A. Matheson Lochgilphead, Argyll.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Comdr. R. Hall to *Ramillies*.

Proby. Surg. Lt. L. F. Donnan to *Revenge*.

Proby. Surg. Lt. J. K. Sargenston and Surg. Sub-Lt. R. F. Hand to be Surg. Lts.

ROYAL ARMY MEDICAL CORPS

Capt. N. H. Lindsay retires on account of ill health receiving a gratuity.

TERRITORIAL ARMY

Capt. A. T. Ashcroft to be Maj.

N. C. Oswald (late Offr. Cadet, Camb. Univ. Contgt. (Med. Unit) Sen. Div., O.T.C.), H. Mannington and G. B. Ebbage to be Lts.

Arrangements for the encampment of London District Territorial Army troops, R.A.M.C., for annual training from August 1st–15th have been made as follows: 13th Genl. Hosp. at Shorncliffe; 167th Fd. Amb., 140th Fd. Amb., 8th Hygiene Coy. H.Q., and 12 Section at Currenden; 13 Section at Dibgate (prov.).

ROYAL AIR FORCE

Squadron Leader D. A. Wilson to Princess Mary's R.A.F. Hospital, Halton, for duty as Medical Officer.

Flying Offr. J. D. Milne to R.A.F. Station, Worthy Down.

Short Service Commissions as Flying Officers for three years on the active list: J. H. L. Newnham (seconded for duty at the London Hospital) and P. A. Wilkinson (seconded for duty at the Derbyshire Royal Infirmary).

INDIAN MEDICAL SERVICE

Capt. W. J. Shipsey to be Maj.

Lt. (on prob.) W. J. Young is restd. to the estbt.

DEATHS IN THE SERVICES

Colonel WILLIAM ALLAN MAY, C.B., late R.A.M.C., who died at Bath on May 18th in his 87th year was the son of Joseph May, F.R.C.S. Eng., of Devonport. He was educated at Tavistock Grammar School and qualified M.R.C.S. Eng. (1873) and L.S.A. Lond. (1874). In the latter year he entered the Army Medical Department, becoming surg. major in 1886 and colonel in 1903. He retired in 1907. He served in South Africa (1900–02) as P.M.O., 8th Div. Field Force, was mentioned in dispatches, and created C.B. (Mil.). He was P.M.O. in Natal (1902–03), in Egypt (1903–04), and for Tidworth district (1905–07). He served in the European war at home and was twice mentioned. He married in 1876 Cecilia Adele, daughter of the late Gen. G. A. von Öhlhaffen, Colonial Engineer, British Honduras.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A MEDICAL ECONOMIST

V

THERE is an idea, often impressed upon young resident medical officers by their chiefs, that hospitals, in common with other institutions, possess a spirit. I used to believe this myself and even to imagine that I could feel the spirit of the hospital in which I served. But I am sure now that I was mistaken. The alleged spirit of the hospital was in fact the inspiration of my chief and his colleagues. I have lived long enough to see hospitals go down so that their lack of "spirit" was only too obvious and I have also seen hospitals restored by the exertions of able and single-minded men.

They know all about this process in the public schools and, in consequence, exercise the greatest care in the choice of a head master. If they select the right man the school quickly becomes famous and attracts the sons of the most distinguished men of the time; but if a bad choice is made deterioration immediately occurs. There is nothing in bricks and mortar, in other words, to guarantee enthusiasm; nor is the memory of great service, unless it be supported by an active leadership, proof against human frailty.

The point is important in a world where the use of abstractions has assumed formidable shape. Schools, hospitals, towns, cities, countries—all, nowadays, are endowed with "spirits" and spoken of as if they were men and women. Books are written to investigate and analyse these modern monsters who, indeed, constitute a kind of Godhead.

The idea behind the fashion is, of course, that man in the mass differs from man the individual. This is accepted as axiomatic; is not mob psychology a fact of history? Men, according to Rousseau, become wholly different from their former selves when they are subjected to the influence of society and it is only necessary, therefore, to transform society in order to transform all its members. We have been working upon that idea for more than a century. The progress, in the best sense of that word, which was hoped for does not seem to have materialised.

The idea itself deserves scrutiny for it amounts to the assertion that an abstraction, society, is capable, over a longer or a shorter period, of effecting a kind of sexless regeneration. The individual plays no part; he is "influenced" just as the R.M.O. is supposed to be influenced by the hospital.

This remarkable process stands in the sharpest contrast to the kind of influences with which we are all familiar in our personal lives—for example, the coming of an enthusiasm or vocation, the birth of a deep friendship, or the love of woman or man. In these latter cases the person does experience a rebirth but the experience belongs exclusively to his or her own spirit and is, throughout, active and conscious.

Again "society" as Rousseau used the word is an elastic term. It may mean the State, the city, or the village. It may also mean the whole of humanity in reaction to the circumstances of nature. The constant reference to "the savage" in French Revolutionary writing conjures up a picture of man's ascent, by and through society, from the cave to the castle. Thus, on the one side, are ranged a whole world of dangers and threats of calamity and on the other a "social organism" capable of effecting an unlimited number of transformations and transmutations, whereby danger is discounted and calamity overcome.

* * *

Students of English history are aware that the same idea underlay the philosophy of the Puritans. In that case, however, society meant the Presbyterian Body, association with which "uplifted" the unregenerate human creature to heights of spiritual strength. Nature was the enemy. So much so that Luther, who was by no means strict in his puritanism, denounced as a great heresy the idea that Nature might not be wholly vile. Nor was his opinion peculiar to himself or his age; the Stoics had said the same thing, though, again, in different language. These inheritors of Plato's philosophy, indeed, demanded, like their master, some ideal social structure by which men might be saved. From age to age philosophy concerned itself with the ascent not of man but of mankind. And the conclusion reached was always the same—namely, regeneration by abstraction, society, church, State, even war.

Nor has our own age failed to tread this hard-beaten path. As was to be expected the ancient doctrine in its most modern form wears the complexion of science, but the features, nevertheless, are unmistakable. If for "society" we read "natural selection" we shall find ourselves immediately in familiar surroundings. Here, again, is the ascent of mankind, sexlessly, *en masse*, in the face of a hostile and unrelenting nature. As usual, all difficulties arising out of the character and behaviour of the individual man are swept aside. Man is vile and cannot ascend except by process of evolution.

What, in fact, does this doctrine of evolution teach? There are few things about life which are more fully substantiated than the rigidity of species. Whereas within the species almost any change can be effected by suitable mating, the species itself is a walled city. Evolution, therefore, in the sense in which Darwin and Huxley used that term can scarcely have come about as the result of mating in the ordinary acceptation. Evolutionists are apt to avoid this difficulty by retreat into geology—that is to say into Time. But the difficulty is not thus overcome. If the contention be merely that a given species has undergone morphological adaptation there is no ground of dispute; if, on the contrary, breeding across the type is suggested then more substantial evidence than geology can supply is necessary.

For what, in effect, is being said is that there are two kinds of reproduction, the ordinary kind and another in which masses and not individuals play the active part. These masses are the evolutionary vehicle and by their regenerative power the species is changed. It is true that, when Darwin wrote, the science of genetics had scarcely been born. But the doctrine of evolution is still preached like a gospel and forms, now, the basis of the thinking of millions of men and women.

These millions in consequence experience not the slightest difficulty in looking upon the abstraction society (that is to say non-ecstatic regeneration) as author and finisher and so in acknowledging their debt to it. All their ideas, even their religious ideas, are coloured by this attitude. Thus the teaching

that love alone can create and that the Creator himself is love has undergone subtle changes of emphasis. Above love, it is insisted, stands justice to which love must needs make sacrifice. Justice is a social idea. Thus, love is in debt to society, individual creation to social creation; God the Father to God the Unknowable, that is to say to a "mathematical point" or to nothing at all.

This is a most convenient philosophy for the salesmen of debt and it is interesting, therefore, to note that it has been most actively taught and most widely believed in those periods when money-lending was most rampant. The Greeks of the Athenian period were so bowed down by usury that great numbers of them had sunk into slavery. The Romans adopted the Stoic philosophy and Gibbon is of opinion that it was money-lending, debt, which ruined and destroyed their civilisation. During the "Age of Faith" on the contrary, money-lending was forbidden; every man, in those centuries, had his personal dignity as "father and Christian." The Renaissance brought back classical learning—i.e., Greek and Roman philosophy—and soon Calvin, in Geneva, was giving his blessing to usury. Since then the march to ruin has been swift. To-day, buttressed by evolution, the money-lender and his magic are enthroned in the heavens and upon the earth. Evolution, society, the State, the commonwealth—all these are pretty names for debt.

* * *

Social regeneration is monstrous untruth. For, as has been said, creation is by love, by ecstasy, and not otherwise. And this applies equally to all creation whether in the family, in the arts, or in the sciences. Again, creation is by persons and occurs independently of any social structure. Social structures, indeed, exist by and through the creator's ecstasy—as witness the dissolution of beehives and termitories if the queen is removed. There is no mass regeneration or reproduction and even the devices by which artificial insemination is brought about are vain if there be not what corresponds to an ecstasy of the reproductive cells. In other words, as was said in a previous article, the leader, of his King-thought, creates the social organism just as the father of his love creates the family.

Unless these facts of experience are borne in mind abstract ideas are poison. The great central fact of life is the ecstasy of the individual being out of which creation proceeds. That ecstasy, if it is real, is always made flesh whether as offspring or as art, music, literature, scientific discovery, the doctor's office of healing, or the craftsman's work. And always that process is attended by danger for the individual who nevertheless experiences great joy of it. Love, in short, is death and the resurrection from the dead; it is the incarnation of spirit in flesh as well as the transmutation of flesh into spirit. This, and this only, is the ascent of man, which ascent every man must make for himself by and through agencies which in time past very wise men did not hesitate to call supernatural and divine.

PANEL AND CONTRACT PRACTICE

A SOUTH AFRICAN HEALTH INSURANCE SCHEME

THE report of the Departmental Committee appointed by the South African Government to consider the introduction of national health insurance into the Union of South Africa has now been published and almost the whole of it is reprinted in the issue of the *South African Medical Journal* for April 24th.

The question has long been under consideration in the Union. As early as 1926 the South Africa committee of the British Medical Association passed resolutions in favour of establishing in the Union a scheme of insurance against sickness and invalidity, to include all races and the dependents of the insured, resting on a compulsory and contributory basis and starting in urban areas. The resolutions have been repeatedly reaffirmed, and were included in the evidence submitted to the Departmental Committee by the Medical Association of South Africa (B.M.A.). The recommendations of the Association, including those relating to the capitation fee, were in substance accepted by the Committee, and the report may therefore be taken as expressing not only the results of a thorough official investigation but also the views of the representative body of the South African medical profession. The two medical members of the Committee, though they have signed the report with their colleagues, have each submitted a minority report dissenting from some of the Committee's conclusions relating to the provision of medical services in rural areas; but the *South African Medical Journal*, the official organ of the Medical Association of South Africa (B.M.A.), states emphatically that though the signatories of the minority reports were nominated by the Association, their reports "must not be taken as representing the views of the medical profession in South Africa or of any branch or division of our Association."

The report is a valuable and workmanlike document. The Committee made a careful study of what has been written on the subject; they were at pains to ascertain the views of interests likely to be affected by a national health insurance scheme; they visited many areas; and they had, early in their inquiries, the advantage of conferring with Sir Walter Kinnear, who was on a holiday visit in the Union.

The Committee, like all other bodies that have attempted to draw up health insurance schemes in the Dominions, were impressed by the difficulties of providing health insurance in outlying rural areas. In South Africa the difficulties are specially formidable, because of the relative scarcity of doctors. In 1931 the population of all races in the Union was 8,132,600, and the number of practising doctors was 1533, or 5305 persons per doctor, as compared with 800 in Australia and 1500 in England. The Committee conclude that the "time is not yet ripe for the initiation of a scheme of health insurance for our rural areas."

A SCHEME FOR THE URBAN AREAS

A scheme, however, is formulated and recommended for applying health insurance, on a compulsory and contributory basis, to all employees, both manual and non-manual workers, earning not more than £400 per annum and employed within the areas of urban local authorities "and such other areas as the Government may from time to time proclaim." In the Committee's opinion this would bring within the scope of the scheme all workers resident within a radius of three miles from an insurance practitioner's surgery. It is estimated that the number of such employees is 882,683. The insured persons would be placed in eight wage-groups, the lowest wage being up to £36 per annum, and the highest from £320 to £400; and within each wage-group the contributions and the cash benefits would be uniform. The weekly contributions payable by the

Government, the employer, and the insured are as follows :—

Wage-group.	Weekly contribution.			
	Total.	Of which payable by—		
		Government.	Employer.	Insured.
	s. d.	s. d.	s. d.	s. d.
(a)	1 0	0 3	0 9	—
(b)	1 5	0 6	0 9	0 2
(c)	1 10	0 6	1 0	0 4
(d)	2 5	0 6	1 2	0 9
(e)	3 0	0 4	1 5	1 3
(f)	3 10	0 4	1 9	1 9
(g)	4 8	0 4	2 2	2 2
(h)	5 6	0 4	2 7	2 7

It is estimated that at the beginning of the scheme the annual contributions will amount to a total of £5,331,691, to which the employers will contribute 49·95 per cent., the insured 35·48 per cent., and the Government 14·57 per cent. Expenses of administration are estimated to amount to 10 per cent. of the total contributions. The contributions of employers and employees would be collected, as in Great Britain, by means of insurance stamps affixed weekly by the employer on the insurance card of each employee.

The scheme would be administered by a central board of management consisting of an equal number of representatives of the Government, the employees, and the employers, one of the Government's representatives being a doctor, and locally by district boards consisting of representatives of the Government, employees, and employers, and of the medical profession, one of the latter being chosen by the local medical committee, to be set up in the area of each district board. Local medical committees would deal with such matters as the range of insurance medical services, the control of unnecessary prescribing and lax certification, and disputes between insurance practitioners. Disputes between practitioners and insured persons would be dealt with by a subcommittee of the district board consisting of an equal number of representatives of the board, and of persons appointed by the local medical committee, with a neutral chairman.

BENEFITS

The scheme would provide cash benefits and medical and ancillary services. The most important of the former is sickness benefit, which is the payment of weekly sums to insured persons rendered incapable of work by sickness. The sums stated vary with the wage-groups of the insured persons. In the lowest group the sum stated is 4*s.*; in the highest it is 32*s.* The insured person would receive also an additional payment for a dependent wife, or husband, and for each child, up to four, below 16 years of age. The additional sums also vary with the wage-group in which the insured person is placed. Sickness benefit would be paid at these rates for 26 weeks, and at half rates for 52 subsequent weeks of sickness.

In providing cash allowances for dependents the scheme follows the precedent of unemployment insurance, but not health insurance, in this country. The Committee think that the difficulties of administering sickness benefit, especially those relating to certification, appear to be serious in all countries, and are likely to be exceptionally serious in South Africa, and they therefore submit an alternative scheme in which no provision for sickness benefit is made.

The scheme provides a maternity benefit, consisting of (*a*) a lump sum payable on the confinement of the uninsured wife of an insured man or of an insured woman, and (*b*) in the case of an insured woman, weekly payments during the four weeks following confinement. The lump sum varies according to the wage-group from £2 to £9, and the weekly payments from 4*s.* to 32*s.*, together with a supplementary allowance for an incapacitated husband and for each dependent child under 16.

Unlike most national insurance schemes, this scheme provides a funeral benefit, which is a lump sum payable on the death of an insured man, or the dependent wife of an insured man, or of the dependent child of an insured person. The amount varies according to age-group from £4 to £11 for a man or a woman, and from £2 to £5 10*s.* for a child.

MEDICAL BENEFIT

The most important, and most costly, benefit is medical benefit, which is described under three categories: ordinary, specialist, and hospital. Ordinary medical benefit includes (1) general practitioner services, excluding attendance on a confinement, and for an illness directly arising therefrom during the subsequent four weeks, and (2) the supply of drugs and of such appliances as may be included in a list to be prescribed by regulation. Specialist medical benefit includes all other medical and surgical treatment, the division between the two categories to be in accordance with regulations made after consultation with the medical profession. Hospital medical benefit consists of the payment of 9*s.* per day for not more than thirteen weeks in a case in which a person is admitted, on his doctor's request, to a hospital or approved nursing-home, or, where such accommodation cannot be obtained, is receiving full-time attendance at home from a nurse. The dependents of the insured as well as the insured themselves are entitled to medical benefit.

The Committee recommend that the capitation fee should be that put forward by the Medical Association, which, however, they say is somewhat higher than they contemplated. It is 9*s.* for persons with an income below £180 per annum, and 13*s.* for those with incomes between £180 and £400. They also recommend, in agreement with the Association, that a sum equal to 25 per cent. of the total value of the capitation fees should be provided to form a pool for the remuneration, on an attendance basis, of the specialists, and that the administration of this pool should be vested in the medical profession. It is contemplated that a contract will be entered into between the insurance authorities and the Medical Association for the provision of the general practitioner service, which will be open to all practitioners who desire to participate in the scheme, and that the insured persons will be free to choose their doctors from among such practitioners. The specialist services will be provided by a contract between the same parties on somewhat similar lines.

It is estimated that the costs of the benefits in the early stages of the scheme will be as follows :—

	£
Medical—	
Ordinary	1,599,412
Specialist	247,922
Hospital	675,995
Maternity	569,276
Funeral	161,407
Sickness	1,358,309
Total	£4,612,321

The scheme follows that of Great Britain in many important respects—in particular the right of all doctors to take part in insurance practice, free choice

of doctor, the capitation method of remunerating general practitioners, and the assumption by the medical profession of important administrative functions. In the extended range of medical services provided, and in the division of the insured population into wage-groups with different rates of contribution and of cash benefits, it is more in line with the German system. For the varying of the capitation fee according to the income of the patient there appears to be no precedent in national health insurance administration. It seems likely to give rise to considerable administrative difficulties, and the same may be said of the division of the insured population into eight wage-groups.

Though the Departmental Committee do not feel justified in recommending any form of insurance scheme for the rural areas, or the native areas, they make certain proposals for improving the medical and nursing services of those areas. The measures proposed do not, however, appear to be precisely defined or adequate to deal with the difficulties described, and seem in some degree open to the objections expressed in the minority reports of the medical members. But this is a subject on which no one unacquainted with the local conditions could venture to form a confident opinion.

The report of the Committee is being widely circulated, and will doubtless be much discussed; and it is not unlikely that their recommendations will be materially modified before they reach the Legislature.

SPECIAL ARTICLES

FOUR THOUSAND BASQUE CHILDREN

By Richard W. B. Ellis, M.D., M.R.C.P.
ASSISTANT PHYSICIAN FOR CHILDREN'S DISEASES, GUY'S HOSPITAL, LONDON; AND

Audrey E. Russell, M.B.
ASSISTANT IN THE CHILD WELFARE DEPARTMENT, UNIVERSITY COLLEGE HOSPITAL, LONDON

The shipload of children from Bilbao who arrived at Southampton on Saturday is a grim reminder of the magnitude of the refugee problem created by modern warfare. When it is realised that the ship could have been filled many times over with children whose parents would prefer to be separated from them for an indefinite time rather than let them face existing, and imminent, conditions in Bilbao; that very many more have already been evacuated to France; and that the population of Bilbao is still nearly double its normal figure, some idea may be gained of the work of evacuation which still remains to be done. As the arrival of this group of children has already aroused interest and sympathy in this country, we feel that a few particulars of existing conditions in the Basque capital and of our impressions gained of both parents and children during the medical examinations carried out there may be enlightening.

THE SITUAT.ON IN BILBAO

On visiting the Assistencia Social (the ministry directly concerned with the refugee problem) and the institutions for orphans and the aged under its control, it became obvious that the Basque Government is making magnificent efforts to deal with difficulties becoming daily more impossible. Most of the public services are still operating though the schools have had to be closed owing to the incessant air raids, the women and children spending most of the day on the steps of the "refugios" (or bomb-shelters) ready to take cover when the sirens give the alarm. Fortunately the many attempts to bomb the waterworks have as yet been unsuccessful, so that a good water-supply is still available and no severe epidemics have broken out.

The strictest rationing is in force, and though a few food ships have run the blockade there is only ten days' food in hand for the city. For many weeks the people have been living on beans, rice, cabbage, and 35 grammes a day of black bread. Owing to the evacuation of the surrounding farms and villages, eggs, meat, milk, and butter are almost unobtainable. There are small supplies of oranges and olive oil, but only a minimal amount of fresh vegetables. There is no coal, and owing to the air raids, little opportunity for cooking. In many cases it is obvious that the women have starved themselves to provide for the children. One pregnant mother who brought up five healthy looking children for examination was herself so weak she could hardly stand, and said, smiling, that perhaps she would find "time" to eat when her children were safe in England. Some idea of the state of general disruption caused by the continual aerial bombardment of the town may be gained from the conditions under which the medical examinations had to be carried out. The group of children selected for the "Expedicion a Inglaterra" had been numbered, and the first five hundred numbers notified by an announcement in the papers to attend the Assistencia Social at 8 A.M. The examinations had hardly begun when the sirens sounded the alarm, and the children scattered to the nearest refugio. The air raid lasted 40 minutes. This happened four times during the morning, by which time only about sixty children had been seen, and the rest had all dispersed. Next day it was impossible to get any to attend, for it was Coronation Day and manifestos had been dropped from the air saying that that day would be chosen to bombard Bilbao "from air, land, and sea." The following day it was decided to work in a garden containing a refugio (which served as a convenient dressing-room), but even then interruptions were so frequent it became clear that most of the work must be done at night if it was ever to be completed. And so a continuous queue filed by each night until 2 A.M., without the slightest complaint, children often attending alone or with an older child, and not infrequently unable to get home that night. We cannot speak too warmly of the courage and coöperation both of the children and of their parents. Those who have examined many throats will realise what this implies: not a dozen children out of the whole four thousand cried during the examination, and only four had to be held!

RESULTS OF MEDICAL EXAMINATION

The group is not, strictly speaking, exclusively Basque in origin, though the majority are of an obviously different physical type from the southern Spaniard. Many have light brown or even red hair, a few are blue-eyed, and very few could be described as swarthy. Their facial colouring would usually pass for that of a sunburnt English child. Perhaps the most surprising feature of the examination was the good health of the group as a whole, in spite of the conditions of deprivation, anxiety, and overcrowding in which they had been living for many weeks. It was evident that even the poorer peasants have a

high standard of care for their children, and that before the blockade almost all the latter were well developed and well fed. It was impossible to weigh and measure the whole group at this time or to apply any strict standards of nutrition, but the impression was definitely gained that although the majority showed loss of subcutaneous fat, the period of malnutrition had not been long enough to cause permanent damage or muscular weakness, and that recovery under proper conditions should be rapid and complete. A few of the smaller children, however, showed really severe marasmus, and were immediately recognisable, even before being stripped, by their blank apathetic faces, their slow movements and whispering speech, and their distended abdomens.

No gross evidence of vitamin deficiency was found with the exception of hyperkeratinisation around the hair follicles, which was relatively common, giving the skin a peculiarly rough feel. It was unfortunately impossible to test for night-blindness. The very high incidence of dental caries, however, is probably attributable at least in part to the deficient diet.

Amongst 4090 children examined, the following conditions were noted (furunculosis, impetigo, and pediculi not being included):

Rheumatic carditis	9	Scabies	13
Old anterior poliomyelitis	5	Ringworm	1
Pott's disease	3	Mumps	2
Otorrhœa	17	Diphtheria	1
Cervical adenitis	17	Bronchitis	4
Hutchinson's teeth	4	Pulmonary fibrosis	1
Clutton's joints and interstitial keratitis	1	Trachoma	2

The two cases of trachoma (occurring in brothers who had come from Valencia) were of course excluded from those allowed to embark, as were the families of those with mumps and diphtheria.

There were also the following congenital abnormalities:—

Congenital morbus cordis	2	Congenital dislocation of hip	1
Dextrocardia	2	Congenital absence of pectoralis major	1
Hemiatrophy of face	1		
Inclusion dermoid	1		

Two interesting features of the findings, if compared with any corresponding figures for English school-children in the same age-group (5 to 15), are (*a*) the extreme rarity of respiratory infection, and (*b*) *the entire absence of chorea*. On the face of it, Bilbao would provide sufficient terror, anxiety, and overcrowding to produce chorea in any normal child if these were the only factors necessary, and one is forced to the conclusion that they are not. Amongst a group of 200 young schoolmistresses and nannies, however, examined at the same time, 2 had to be excluded because of early Graves's disease.

Another revealing feature of the group was the appearance of the children's throats. Less than 2 per cent. had had tonsillectomies performed, and in a very great number of cases the tonsils were as large or larger than walnuts. But the incidence of both cervical adenitis and otorrhœa was only approximately 0·4 per cent., and that of obvious respiratory infection almost incredibly low. The same is true of nasal discharges and respiratory obstruction. The important question arises as to what will happen to these children now they have reached England. Owing to the difficulty of obtaining parents' consent to operation, it is devoutly to be hoped that they will retain their tonsils, since it might well prove disastrous if these were to be removed before the children had had opportunity of acquiring general immunity to catarrhal infections. (It is also perhaps of interest that of the 200 adults examined none showed appreciably enlarged or unhealthy tonsils.)

THE CHILDREN IN ENGLAND

Having been passed by the port medical authority, the children are at present lodged in camp at Eastleigh. It is intended that they shall be drafted from here to homes throughout the country, being kept as far as possible in groups with their appropriate school-teachers. Funds are urgently needed for this work, which is being carried out by the National Joint Committee for Spanish Relief in association with the Catholic, Salvation Army, and other organisations. It was impossible not to be touched by the absolute faith the parents had in handing over their children to the care of England. It will surely be the desire of everyone to see that their faith is justified, and that those children who have parents still living return to them under happier circumstances safe and well.

GENERAL MEDICAL COUNCIL

PRESIDENT'S ADDRESS

OPENING the 145th session of the Council on Tuesday last, Sir NORMAN WALKER spoke of the death of two former members, Prof. Theodore Cash and Sir Grafton Elliot Smith, and of Sir William Hansell who served as legal assessor from 1920 to 1927. Sir Henry Dale had unfortunately been unable to accept reappointment as a Crown nominee, and Sir Norman expressed the Council's gratitude to him for successfully guiding their early steps in their close and cordial collaboration with the British Pharmacopœia Commission.

"It is enjoined by tradition," continued the President, "that the summer session shall be primarily devoted to the first object of the Council's existence, medical education, and that they shall deal with disciplinary cases, as a Council of Medical Registration, mainly at the session in November. But in recent years, at any rate, it has seldom been possible to achieve this aim, because the penal cases committee are not in a position to regulate the numbers of cases of convictions of registered medical practitioners reported, or of complaints made, to the Council, which in their judgment call for the holding of inquiries before the Council at the next ensuing session. On this occasion, fortunately, circumstances seem more favourable than they sometimes are, and though a substantial number of disciplinary cases awaits your consideration, none appears likely to be exceptionally lengthy, and time should be available within the week for ample discussion of the reports of the three committees whose work lies in the sphere of medical education.

"The report which will call for the fullest consideration is that of the education committee, who have been dealing with the concluding stages of the revision of the curriculum initiated in 1934. There has been a little variation in method, though not in principle, in the procedure adopted on this occasion. Instead of leaving the matter to the education committee, as was usually done in the comparatively recent past, the executive committee recommended to the Council the appointment of a special curriculum committee composed of the chairmen of the three standing committees on education, examination, and public health, who were individually recognised as authorities on physiology, anatomy, and public health, with the addition of a physician, a surgeon, an obstetrician, and a member engaged in the general practice of medicine. The Council adopted the recommendation

on June 2nd, 1934. The committee elected Dr. Tidy as their chairman, and commenced work at once, reporting progress to the Council in November, 1934, and making interim reports in May and November, 1935. Constant communication with the licensing bodies was maintained, and most of the deans manifested their interest in, and their criticism of, some of the proposals made. As time went on, and all who are familiar with the working of the Council know that in reform of the medical curriculum it is wisest to hasten gently, the true meaning of a reform of the curriculum was more and more understood.

"This Council is a team composed in the first instance of a representative from each of the licensing bodies. To these are added five nominees by the Crown, and seven practitioners elected by the direct vote of the profession in each of the three divisions of the United Kingdom. To the Council is committed a general supervision of medical education, and in their early days perhaps the licensing bodies were the only persons actively interested. Admission to the Register was easy in 1858, but in process of time, by general agreement among the bodies, the minimum curriculum was fixed at three winter and two summer sessions. Then came four years, and in 1890 the Council unanimously approved an extension to five years, afterwards modified to 57 months, mainly because university 'years' were usually of nine months.

"On no previous occasion have the proposals of the Council been more thoroughly hammered out on the anvil of discussion, and a large measure of agreement has apparently been reached. Thus with certain reservations there seems to be approval of the age of 18 for registration of students.

"The question of biology, chemistry, and physics has always been a problem, and I remind the Council that it was only in 1893 that the Council ordained that the first and last of these subjects *must* be contained in the medical curriculum. Chemistry was defined then as 'including the principles of the science, and the details which bear on the study of medicine.' In 1893 in most parts of the country the teaching of chemistry and physics in schools was of an elementary character, and biology only appeared in the curriculum of one or two of them. Times have changed, and the chemistry and physics taught in the majority of the schools is of high standard, even if it does not include any 'details which bear on the study of medicine.' These must, of course, be learned in medical schools. The teaching of biology of a sufficient standard has not advanced so far as that of the other two subjects: schools capable of undertaking it are not uniformly scattered over the British Isles, and there is a feeling in some quarters that the minds of some young people are perhaps too much devoted to the study of those three subjects to the detriment of their general education.

"Here we are helped by the elasticity of our system. If we agree, in order to furnish the requisite knowledge and skill for the efficient practice of the profession, that the medical curriculum proper requires to be extended to five years, the licensing bodies (all represented here) will frame their regulations accordingly. Already Birmingham, Bristol, Liverpool, Manchester, Oxford, Wales, and University College, Galway, require six years, Cambridge, Leeds, London, and Sheffield five and a half, and it is common knowledge that others have in contemplation an extension of their curricula. This is the way in which medical education in this country progresses. The Council prescribes a minimum below which no body which wishes to retain its right of admission to the Register may drop, but has nothing but a 'well done' for those bodies which raise the standards for admission to their own degrees."

A vote of thanks to the President for his address was proposed by Mr. E. W. Hey Groves, seconded by Dr. T. G. Moorhead, and carried unanimously.

Mr. Harold Collinson, F.R.C.S., representative of the University of Leeds for three years from August 1st, 1936, was introduced by Mr. R. E. Kelly.

The Council then passed to the consideration of penal cases.

IRELAND

(FROM OUR OWN CORRESPONDENT)

A SEQUEL TO INOCULATIONS

A DEATH following immunising injections against diphtheria has lately been investigated at an inquest held at Ring, Co. Waterford. From the evidence given it appears that there is no conflict about the facts. A child of 12 years of age was treated with injections of T.A.F. on Nov. 9th, 17th, and 24th, 1936. She complained of a sore arm early in January, 1937, and Dr. D. T. McCarthy of Dungarvan, who had given the injections, saw her. According to his evidence he found a small discharging ulcer on the site of the inoculation. The axillary glands were enlarged and tender. Her condition deteriorated and the child died on April 20th. An autopsy by Dr. W. J. O'Donovan, lecturer in clinical pathology at University College, Cork, showed generalised tuberculous infection without meningitis. According to Dr. O'Donovan the inflammation on the right arm could not be recognised as tuberculous. Dr. McCarthy stated that he had got the material used from Dr. O'Farrell, county medical officer of health. He had inoculated 44 children at St. Augustine's College on Nov. 3rd, 10th, and 18th, 1936, and no illness resulted. He inoculated 38 children at Ring College on the dates given above, and 24 of them were affected. He believed that these 24 were injected in sequence. He gave in detail the precautions which he took for sterilising the instruments with which he carried out the injections, and stated that he had the attendance of a nurse on each occasion. He had no case of tuberculosis in his general practice or in the district hospital at the time. The child, when ill, had been seen in consultation by Dr. Casey of Dungarvan and Dr. P. Kiely of Cork, and bacteriological examinations had been made by Dr. O'Donovan. He notified the deputy coroner of the child's death. The child's father stated that he had given his consent to the inoculation, that he knew that two of Dr. McCarthy's children had been inoculated at the same time, that three of his other children had also been inoculated, and that they had sore arms. Dr. H. J. Parish, bacteriologist to Messrs. Burroughs Wellcome and Co., who attended the inquest, gave detailed evidence as to the manufacture of T.A.F. and went minutely into the different processes. He contended that their system was error-proof. Prof. J. W. Bigger of Dublin also described Messrs. Burroughs Wellcome and Co.'s laboratories at Beckenham. He was of the opinion that the precautions taken in the manufacture of T.A.F. made it impossible for a live culture of tuberculosis to contaminate the product. The inquest was held by Dr. C. J. Walsh, coroner for East Waterford, since Dr. McCarthy himself was coroner for West Waterford and his deputy was also debarred as he was acting as legal adviser to Dr. McCarthy. At the conclusion of the hearing on May 21st Dr. Walsh adjourned the inquiry sine die for advice as to his jurisdiction.

AN INDIAN LEPROSY HOSPITAL

(FROM A CORRESPONDENT)

ALTHOUGH in one of the healthiest parts of India, at Coonoor, which is situated in the Nilgiris at a height of 6000 ft. over sea-level, one may see on the outer wall of a chemist's shop a large and reassuring announcement to the effect that it sells "the household remedy for all aches and pains," there are other parts of India that have cause to be less happy.

In the largest of the native states, Hyderabad, there is a good deal of leprosy and much is being done under Colonel Norman Walker, director of the Nizam's medical service, to combat this affliction. The annual report of the well-known leprosy hospital at Dichpali makes very interesting reading. In the year ending November, 1936, 903 new patients were admitted, compared with 764 the previous year, while 557 patients passed out of the institution; for lack of space, however, 1209 applications for admission had to be refused. Sir Leonard Rogers wrote in 1933 that "some two-thirds of the lepers in the asylums of India are uninfective nerve cases whose isolation does nothing to reduce infections. Yet the public, in their ignorance, still evince the greatest dread of the perfectly harmless crippled lepers with loss of fingers and toes, although they are mostly suffering from the scars of an old 'burnt-out' infection." It is because the verdict of scientific opinion is quite clear that the general policy which has been operative in Dichpali since its foundation has been maintained, and only such patients are admitted to the hospital as are likely to respond to treatment. It is felt that the "burnt-out" cases are fit subjects not for a hospital but for an asylum, for they cannot face the battle of life unaided. At Dichpali they try to prevent the patients ever reaching the state of mental anguish and physical suffering that is the lot of the victim of advanced leprosy. "We hope," says the report, "that the patients here, after a course of treatment, will be able to return to normal life, and become useful members of society, and we are glad to say that this is generally the case." During the year treatment was carried out along routine lines—i.e., with hydnocarpus oil and its esters by injection, supplemented by regulated diet and occupational therapy. Gingerly, coco-nut and ground-nut oils, as well as copper sulphate solution, were tried, but it is too early to give an opinion on the permanent therapeutic value of these drugs.

Dichpali is maintaining its reputation as one of the finest leprosy hospitals in India. The Nizam's Government, the King's Silver Jubilee Fund, the British Empire Leprosy Relief Association, and many other friends have been generous in their support so that it has been possible to undertake a heavy building programme. Provision is made at Dichpali for both work and play. The latest and best methods of farming are taught, while the adult patients undergo elementary education in the adult schools which are held every afternoon. For the children also there are schools where they learn reading, writing, and arithmetic; their gardens provide an outlet for useful manual activity. In the afternoons the boys may be seen playing football, hockey, or badminton with great zest, while in the evenings the time passes pleasantly in dramas, concerts, or at the cinema. Leprosy is now one of the classes attended by students of Osmania University—in the capital of the State—proceeding to their M.B., and the State medical department also has continued its usual practice of sending twelve medical officers for post-graduate instruction. As a result of this policy, which has been in operation for some years, almost all the medical officers in the Nizam's Government Medical Service are skilled in the diagnosis and treatment of leprosy.

Sister from Dichpali Leprosy Hospital treating patients out in the villages.

AUSTRALIA

(FROM OUR OWN CORRESPONDENT)

AUSTRALASIAN COLLEGE OF PHYSICIANS

THE Australasian College of Physicians, which is being formed, includes in its scope both the Commonwealth of Australia and the Dominion of New Zealand, and it is proposed to model it as far as possible along the lines of the Royal College of Physicians of England. Amongst its objects is the management of post-graduate study in medicine, requiring of candidates for admission to the College evidence that they have given intensive study to advances in knowledge in medicine. Regular scientific meetings will be also held.

It was unanimously determined, at a meeting of representative physicians from New South Wales, Victoria, Queensland, and South Australia, that Sydney should be the site of the building of the College. The Government of New South Wales offered to provide £25,000 towards the foundation of the College and the University of Sydney offered a site on which the building could be erected within the precincts of the University. It was, however,

subsequently decided by the Committee of Physicians that it would be more suitable to have the College situated in a more central position in the city. A committee appointed has purchased a building in Macquarie-street, the old home of the Warrigal Club.

Certain Victorian donors have signified their intention to provide at least £20,000 to initiate a fund for the permanent endowment of the College when completed. Considerable progress has been made in raising further sums of money for alterations to the building and for the maintenance of the College when its activities begin.

INFANT MORTALITY IN SOUTH AUSTRALIA

Vital statistics for 1936 show that during the year infantile deaths in South Australia have decreased to the record low rate of 31·08 per 1000 births. In 1935 the rate was 34·95 per 1000. The present death-rate is less than half the rate of twenty years ago and about a third of the rate in 1900.

CORRESPONDENCE

MEMORIAL TO THE LATE PROF. E. H. KETTLE, F.R.S.

To the Editor of THE LANCET

SIR,—By the death of Edgar Hartley Kettle in December last, pathology, in this country, lost one of its most distinguished exponents, and all who knew him were deprived of a personal friend. We feel sure that those who were associated with him, as colleagues or students in his professional work, or in any other of the activities in which he took part, would desire that his memory should be perpetuated in some suitable form.

Kettle's devotion to his subject, and to all that concerned it, including particularly the interests of his students and younger colleagues, was evidenced throughout his professional career. As an original worker, as a director who stimulated the work of others, as a teacher, as a senior member and treasurer of the Pathological Society, and as an active member of numerous committees, he played a part that will not be forgotten. In each of the four university schools in which he directed the teaching of pathology, St. Mary's, Welsh National School of Medicine, St. Bartholomew's, and the British Postgraduate Medical School, he won the admiration and affection of his colleagues and his students. We feel that a fitting tribute to his memory would be the foundation of a Kettle Memorial Lectureship in Pathology, and that this lecture might appropriately be given annually, in each of these schools in turn.

An endowment fund is being collected for this purpose, and we are sure that his colleagues and friends, including many who, though not pathologists, were associated with him in connexion with his pioneer work on silicosis, or in other ways, would wish to be given the opportunity of contributing. It is suggested that individual contributions should not, in most cases, be more than two guineas, and smaller sums will be welcomed.

Contributions should be sent to The Treasurer, Kettle Memorial Fund, British Postgraduate Medical School, Ducane-road, W.12. Cheques should be drawn in favour of the Kettle Memorial Fund and crossed Barclay & Co.

We are, Sir, yours faithfully,

BALFOUR OF BURLEIGH,
W. GIRLING BALL,
A. E. BOYCOTT,
S. LYLE CUMMINS,
DAWSON OF PENN,
H. R. DEAN,
J. HENRY DIBLE,
J. B. DUGUID,
HERBERT L. EASON,
FRANCIS R. FRASER,
G. E. GASK,
M. H. GORDON,
W. E. GYE,
G. HADFIELD,
JAMES MCINTOSH,
ROBERT MUIR,
J. A. MURRAY,
A. J. ORENSTEIN,
A. H. PROCTOR,
JOHN A. RYLE,
A. W. SHEEN,
BERNARD SPILSBURY,
SQUIRE SPRIGGE,
M. J. STEWART,
W. W. C. TOPLEY,
C. M. WILSON.

May 24th.

OBSTETRICS IN GENERAL PRACTICE

To the Editor of THE LANCET

SIR,—Those who sincerely desire an improvement in our maternity services will be grateful to Prof. Munro Kerr for his letter in your last issue which brings out just the essential points. Most practitioners with experience of general practice realise that, owing to the greatly increased demands made on their time since the introduction of the National Health Insurance Act, they can no longer give adequate attention to midwifery. Midwifery is now full-time work and if we are to avoid the criticism, which appears again and again in the Maternal Mortality Report of the Ministry of Health, that antenatal work is defective, we must have one practitioner with time at his or her disposal responsible for each patient, before, during, and after her confinement.

I was particularly pleased that Prof. Munro Kerr mentions the need for institutional treatment for primigravidæ because public health authorities responsible for the provision of maternity hospitals, while most anxious to do what is right, are too often advised that midwifery in the home is safer than midwifery in hospital, with the result that in most counties maternity hospital accommodation is totally inadequate.

Prof. Munro Kerr is a recognised leader in his profession; will he lead the general public to achieve better maternity services?

I am, Sir, yours faithfully,

Station-road, New Barnet, May 21st. JOHN ELAM.

PERNICIOUS ANÆMIA IN AN INFANT

To the Editor of THE LANCET

SIR,—Dr. Hawksley's letter in your issue of May 15th in which he supports the diagnosis of pernicious anæmia of infancy in the case recorded by Langmead and Doniach raises several points that are of interest. First, he emphasises the presence and importance of achlorhydria in Langmead's case, yet it is well known that during infancy the gastric acidity is extremely variable, that it is frequently low, and that in association with ill health, especially infectious disease, achlorhydria is commonly found.

In answer to my letter of May 8th, Dr. Hawksley suggests that if at a later date the infant is able to thrive without liver therapy it may be presumed that the so-called "pernicious anæmia" was caused by a temporary cessation of ability either to elaborate or to absorb the anti-pernicious anæmia factor. This may or may not be the explanation, but it is hardly justifiable to label a temporary upset in secretion of intrinsic factor true pernicious anæmia—a disease that occurs almost exclusively during the second half of life and in which inability to elaborate the

anti-anæmic factor is permanent. Dr. Hawksley mentions the analogous situation which may arise in cœliac disease, but he will I think agree that we do not label that condition pernicious anæmia.

Among the cases investigated by me, of hæmolytic anæmia of infancy and childhood which showed macrocytosis, the case in which the macrocytosis was most marked and which recovered with the greatest rapidity with liver therapy had a high gastric acidity. In view of this finding it was thought possible that, as a result of prolonged hæmolysis and increased red cell production, the liver factor was temporarily exhausted and that consequently a macrocytic anæmia developed which responded to liver therapy.

I am, Sir, yours faithfully,

Birmingham, May 22nd. W. CAREY SMALLWOOD.

CARCINOMA OF THE STOMACH

To the Editor of THE LANCET

SIR,—In his article on gastric and duodenal ulcer, which appeared in your last issue, Dr. Duncan Leys states that "carcinoma of the stomach is mercifully a relatively uncommon disease." But relative to what? If it be a cold in the head or measles in children the answer may be "Yes," but if it be to gastric disorders of middle age—or indeed to any disease of middle age for that matter—the answer is most emphatically "No." I submit that a truer statement would be that carcinoma of the stomach is mercilessly a common disease, whether the word relatively be used or not.

I have to hand the notes of 25 cases which I saw at King's College Hospital during the first eleven months of 1936 alone. Analysis of these cases speaks for itself. No less than 9 of them were clinically inoperable, and of the remaining 16 which were explored, the radical operation was practicable only in 5. The average duration of symptoms in these cases was one year and eight months—another eloquent fact.

Dr. Leys's unhappy experience of surgery in this disease is, however, by no means a fair representation of surgery as a whole. He writes: "in six years of busy hospital practice, I have not seen a single patient with carcinoma of the stomach whose life has been usefully prolonged by surgery." Most surgeons can claim *at least* that "lives have been usefully prolonged" by the radical operation in proven cases of carcinoma of the stomach. In a comparatively short experience I can from my own series quote one case alive and well four years and eleven months after operation, and several of shorter duration. Length of history, as is well known, is not always an indication of operability. None the less, surgery could do far more did the cases reach the surgeon earlier. As regards differential diagnosis from other disorders of the stomach—not only peptic ulcer but also chronic gastritis—I would commend the use of the gastroscope as a most helpful adjuvant to radiology.

Figures from the gastric clinic at King's College Hospital, where the cases are primarily seen by my colleague, Dr. Charles Newman, bear out the experience of Dr. Leys as regards the relative frequency of gastric and duodenal ulcer. During the first eleven months of 1936 there attended 82 new cases of gastric ulcer and 61 new cases of duodenal ulcer, including 2 of duodenal stenosis. During the same period there were 21 cases of gastritis.

I am, Sir, yours faithfully,

London, W., May 25th. HAROLD C. EDWARDS.

"POPULAR" NAMES OF DISEASES IN DEATH CERTIFICATES

To the Editor of THE LANCET

SIR,—The extract from THE LANCET 100 years ago (May 27th, 1837) in your last issue is of much interest. Probably the letter signed by the medical grandees was composed by Farr and the explanatory statement (which is printed on p. 211 of the volume of excerpts from Farr's writings published by the Royal Sanitary Institute in 1885 under the title "Vital Statistics") is pure Farr. The leader-writer scores a good debating point enough, but Farr might probably have retorted that his proviso "whenever the popular name will denote the cause of death with sufficient precision" met the real objection. The development of Farr's policy in the matter of registration can be followed very well in the volume of excerpts quoted above. Remembering that Farr himself had any amount of intellectual courage verging, as his successor Ogle evidently thought, on temerity, it is noteworthy how cautious he was in imposing rules of nomenclature. As late as the Sixteenth Annual Report he flatly declined to put an official ban on *dropsy*. "The permission to use vague terms in these cases, it is objected, encourages negligence; but the refusal to recognise those terms that express imperfect knowledge has an obvious tendency to encourage reckless conjecture." I stoutly resist the temptation to display my King Charles's head on a charger with the label *status lymphaticus*, and content myself with remarking that Farr's conservatism was a great virtue. I am, Sir, yours faithfully,

Loughton, May 22nd. MAJOR GREENWOOD.

THE PATELLA

To the Editor of THE LANCET

SIR,—Many surgeons must have had their former conceptions of the functions of the patella rudely shaken by Mr. Ralph Brooke's article in the current number of the *British Journal of Surgery*. That the patella can be removed and the power of the knee increased seems to go against all that was taught us in our anatomy studies; yet this is what Mr. Brooke has now demonstrated. The explanation of this anomaly is brought out by Prof. Hey Groves's paper in the same journal, and it would appear that we must now look upon the patella as a rudimentary structure, a back-number like the appendix. Surely this new conception of the mechanics of the patella is aptly to be stated by saying that the patella is a sesamoid bone, not in the tendon of the quadriceps but deep to it, or underneath it. When one dissects back the quadriceps expansion in the new operation of removal, one is surprised at the thickness of the tendon over the patella compared to the lateral expansions—the capsule that one cuts through in the removal of a semilunar cartilage.

The surgeon is sometimes surprised that a patient with a comminuted fracture of the patella due to direct violence is still able to use the knee. The reason for this is now made clear, as the following case brings out.

A clerk, aged 50, slipped on some railway stairs, hitting his knee-cap several times as he fell downwards. He was able to get up, catch his train, and do a day's work. Next day as the knee was swollen he consulted his own doctor and was advised to rest for a few days till the fluid went down. However, when he started to use the knee again the fluid returned, with a little discomfort, though he was able to walk a mile or so to the station each day. After nearly a fortnight he was advised to come up to hospital. When

he came into the out-patient room he walked with a slight limp, but was able to flex and extend the knee to nearly its full range. The tenderness of the patella suggested a chip off this bone. Radiography however showed a comminuted fracture. As he seemed a suitable case, operative removal was decided upon.

When I exposed the patella I found that the prepatellar aponeurosis and the lateral expansions were intact. On incising this I was surprised at the cuff of aponeurosis nearly a quarter of an inch thick which I had to reflect back over the patella to reveal the fragments beneath. This was very different from the frayed ends which one endeavours to sew up in operating to wire a transverse indirect violence fracture. After removal of the bone this aponeurosis came together with ease, and when sewn up was certainly as strong as the tendo Achillis. One saw how with this aponeurosis intact, the mechanical power of the quadriceps was but little impaired, once there was some power of adhesion between the fractured surfaces and the surrounding hæmatoma, so that a pulley action was again possible round the lower end of the femur.

It would be interesting to know the experience of other surgeons with this new operation; both in the case of comminuted and in transverse simple fractures. I am indebted to Mr. Alan Todd for kindly allowing me to operate on this patient.

I am, Sir, yours faithfully,

Devonshire-street, W., May 23rd. G. O. TIPPETT.

THE LIMITED FIELD OF CANCER RESEARCH

To the Editor of THE LANCET

SIR,—A perusal of the thirteenth annual report of the British Empire Cancer Campaign leaves one with the feeling that, as far as treatment by radiation is concerned, too large a share of the available workers and resources is being concentrated on the use of radium and super-voltage X ray therapy, a share altogether out of proportion to any reasonable expectation of what can be achieved by these agents, to the detriment of other lines of research. I doubt whether the most optimistic of radium therapists ever hope for so much as a 50 per cent. five-year cure of all cases of cancer referred to them for treatment. All experience so far recorded of the use of super-voltage X ray therapy indicates that the most to be expected is possibly slightly better results in a very limited class of cases.

The construction of such costly forms of apparatus as radium bombs and super-voltage X rays generators would only be justified, beyond one or two sets for experimental purposes, if there were substantial reasons for believing that it would lead to a great advance on all previous methods in controlling cancerous growths. There is no convincing argument in favour of such an expectation. The only justification for this outpouring of treasure and effort is an assumption that the gamma rays of radium possess a greater therapeutic value than X rays, which is due to their shorter wave-length, and hence the shorter the wave-length of X rays the greater their usefulness.

That radium has been used with more success than X rays in the treatment of malignant disease in certain situations no one will deny; but, in these cases, besides the difference of the wave-length of the radiation, there are other important variant factors which are known to exert a powerful influence on the results. To assume that the shorter wave-length is the only factor responsible for the better results, or even that it is a contributory cause, is illogical.

The cavities of the body are the situations in which radium can be used with the greatest advantage, because it can be placed in contact with the growth and its radiation is diminished in intensity before reaching the subjacent healthy tissues. This alone might account for better results, but there is also the time-intensity factor. For a dose of equal intensity a much longer time is required when using radium than when using X rays. This dissimilitude can be lessened by splitting the X ray dose into a number of small daily doses and this practice has been followed by greatly improved results, proving that the time during which the growth is under the influence of radiation is of great importance. By means of the Chaoul technique, brilliant results have been obtained with X rays of long wave-length by bringing the source of radiation very close to the growth—further strong evidence against the assumption that wave-length is a factor of importance.

It would be neither a very difficult nor a very costly experiment to compare the action of X rays and gamma rays with the time-intensity factor eliminated. By means of a long shield—say any length up to ten feet—the X ray tube could be used at such a distance from the patient and the current could be so adjusted that the intensity of the radiation would be the same as that received from a radium pack; in short, with X rays the time-intensity factor is entirely under our control.

The assumption that the gamma rays of radium have a therapeutic value that can only be equalled by X rays of equally short wave-length, when they can be generated, is based mainly, if not entirely, on impressions; they are the impressions of those working with radium, and we know quite well that there are very few workers who are free from a strong bias in favour of their own methods. The arguments against this assumption is based on facts. Experiments with drosophila eggs and other test materials go to show that biological reaction is independent of wave-length. Then there is the brilliant success of the Chaoul technique, in which the X rays are generated with a voltage of only 60,000. And there is also the fact that the results obtained at Erlangen, by treating uterine carcinoma with X rays only, compare very favourably with the results obtained by the combined use of X rays and radium.

And the claim that super-voltage X ray therapy is an advance of any value was, to my mind, finally disposed of at the thirty-sixth annual meeting of the American Roentgen Ray Society in September, 1935. At this meeting, after the reading of papers recording poor results of this method, Dr. Carter Wood of New York City said "it would be well to confine the construction and operation of these very expensive forms of apparatus to those now installed in the institutions in various parts of the country." Dr. Ruggles, whose name is well known also in this country, speaking of a year's experience with 800 kv. X rays, said: "From what can be observed in the routine of a clinic they (the patients) do about as well as those treated at 200 kv."

Neither theoretically, nor from practical experience, have we any reason to expect any outstanding advance in the treatment of cancer by the use of X rays of very short wave-length.

At the same meeting of the American Roentgen Ray Society, an account of which is well worth the study of those controlling research in this country, a paper was read by three radiologists, reporting three cases, two of advanced carcinoma mammæ, one of which had widespread bone metastases, and one of lymphosarcoma involving the lymph nodes of almost the entire body, all well and clinically free from disease five years after treatment. The treatment

was X radiation of the whole body and endocrine glands extending over a year. In view of the uncertainty of the effects of whole-body radiation only these three cases had been treated up to two years ago. Here is a method by which there is some possibility of a great advance, yet there is nothing in the report of the British Empire Cancer Campaign about research in this direction, nor the radiation of large areas of the body with a view to increasing the patient's resistance to the cancerous invasion and increasing the radio-sensitivity of malignant growths.

I am, Sir, yours faithfully,

Dover, May 22nd. WILFRID GARTON.

TRACHOMA IN REFUGEE CHILDREN

To the Editor of THE LANCET

SIR,—Lord Lloyd in the House of Lords last night performed a public service by asking a question as to the incidence of trachoma among the refugee children from Spain who have arrived in this country. It is known that in many of the provinces of Spain the disease is practically universal. Lord Lloyd was informed that a voluntary body called the National Joint Committee for Spanish Relief sent out some doctors to examine the children before they left Bilbao. It is not reported that any of these gentlemen had any experience of trachoma or even any special knowledge of ophthalmology. The examination of the eyes of 4000 children by port medical officers on arrival at Southampton was an absolute impossibility. It is therefore still unknown what proportion of the children if any is trachomatous. The difficulty in making a diagnosis in the early stages of the disease, its contagious nature, the long period required for treatment, and its devastating effects on visual acuity make it important to decide the matter.

If the children are to be kept segregated in a camp no danger will accrue to the surrounding inhabitants. On the other hand, if a few of them are trachomatous and are temporarily placed in Salvation Army or other homes in contact with other children there is every expectation of a recrudescence of the disease in this country. In this matter the responsibility of the Ministry of Health is very great.

I am, Sir, yours faithfully,

A. F. MACCALLAN,
President of the International Organisation against Trachoma.

London, May 26th.

MIDDLE-EAR DISEASE IN INFANCY

To the Editor of THE LANCET

SIR,—I was very interested in the leading article in your last issue. At the Hospital for Sick Children, Great Ormond-street, it has been recognised for some years that pus in the middle ear and mastoid is a frequent autopsy finding, especially in infants dying of gastro-enteritis. I have just looked through the post-mortem records of the past two years and observe that out of the 170 autopsies in which the middle ears were examined, just over 50 per cent. had pus in one or both. This agrees closely with Dr. Ebbs's figures for a much larger series. All but a small proportion of these positives were in children under two years of age. Another fact that emerges is that a much higher proportion of children dying from gastro-enteritis have pus in their middle ears than those dying from other diseases. Thus 33 (65 per cent.) out of 43 cases of gastro-enteritis had one or both ears infected whereas of 100 children under two dying of some other disease only 44 had pus in one or both middle ears.

From these figures it seems that the infant suffering from gastro-enteritis is particularly liable to a middle-ear infection. The gastro-intestinal infection is, I think, undoubtedly in some cases secondary to the otitis media; but, in my view, in the majority of cases the otitis supervenes during the course of the gastro-enteritis and, as Dr. Ebbs suggests, may contribute to the fatal issue.

All who have to deal with these patients know how difficult of diagnosis the otitis media may be. Not only are there no symptoms but frequently the appearance of the drum is normal. It must be a common experience for the ears to be pronounced normal only to find them full of pus at the autopsy a day or two later. One should never hesitate to incise a drum should there be any suspicion, such as a sudden unexplained rise of temperature would provoke, that the middle ear has become infected.

The ventilation of this difficult subject at the Royal Society of Medicine discussion should stimulate both otologists and pædiatricians to coöperate in investigating this widespread malady.

I am, Sir, yours faithfully,

G. H. NEWNS.

Hospital for Sick Children, Great Ormond-street, May 25th.

A REMEDY FOR HÆMORRHOIDS

To the Editor of THE LANCET

SIR,—In your issue of May 22nd (p. 1261) you refer to a very recent paper in the *Revista sud-americana de endocrinología immunología y quimioterapía* in which an oily solution of an extract of the earthworm *Microscolex dubius* (Fletcher) is recommended as a remedy for piles. It may perhaps interest your readers to learn that this is a very ancient treatment. Stephenson, in his monograph on the Oligochæta, quotes Damiri, the author of an Arabic treatise on the life of animals, written in A.D. 1371, as saying that suppositories made from earthworms fried in olive oil and powdered are highly beneficial to persons suffering from piles.

I am, Sir, yours faithfully,

C. C. A. MONRO

British Museum (Natural History), Cromwell-road, S.W., May 22nd.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 15TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1440; diphtheria, 781; enteric fever, 24; pneumonia (primary or influenzal), 798; puerperal fever, 26; puerperal pyrexia, 108; cerebro-spinal fever, 30; acute poliomyelitis, 5; acute polio-encephalitis, 2; encephalitis lethargica, 5; continued fever, 1 (Nuneaton); dysentery, 16; ophthalmia neonatorum, 76. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 21st was 2967 which included: Scarlet fever, 783; diphtheria, 856; measles, 76; whooping-cough, 496; puerperal fever, 17 mothers (plus 12 babies); encephalitis lethargica, 283; poliomyelitis, 0. At St. Margaret's Hospital there were 20 babies (plus 12 mothers) with ophthalmia neonatorum.

Deaths.—In 123 great towns, including London, there was no death from small-pox, 3 (0) from enteric fever, 13 (0) from measles, 3 (0) from scarlet fever, 20 (6) from whooping-cough, 19 (3) from diphtheria, 57 (13) from diarrhœa and enteritis under two years, and 36 (5) from influenza. The figures in parentheses are those for London itself.

The fatal cases of enteric fever were at Portsmouth, Southampton, and Southend-on-Sea. Liverpool reported 3 deaths from whooping-cough. Diarrhœa was fatal in 3 cases each at Liverpool and Nottingham.

The number of stillbirths notified during the week was 277 (corresponding to a rate of 43 per 1000 total births), including 51 in London.

OBITUARY

FREDERICK EDGE, M.D., M.R.C.P. Lond., F.R.C.S. Eng.

Dr. Frederick Edge, who died at Wolverhampton on May 17th, was born in Russia in 1863, the son of William and Mary Pollitt Edge. He was educated at Owens College, Manchester, and St. Thomas's Hospital, London, qualifying in 1886, and taking higher diplomas after further study at Munich, Vienna, and Dresden. Five years after qualifying he settled in Wolverhampton and was shortly appointed honorary surgeon to the Women's Hospital, then in St. Mark's-road. A few years later he joined the staff of the Birmingham and Midland Hospital for Women, and on both these hospitals he served for thirty years or more. Later he was attached to the Birmingham Maternity Hospital and examined for the Central Midwives Board. Before his hospital appointments became too pressing he was a member of the Wolverhampton town council. He married the daughter of Isaac Bradley of Codsall House, Staffordshire, and leaves two sons and a daughter.

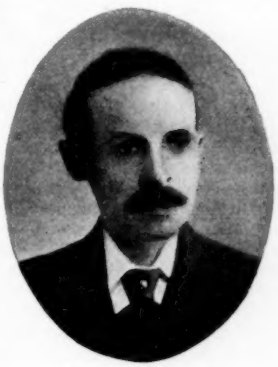
J. H. S. writes: "In the week that Frederick Edge died there appeared in THE LANCET an article entitled 'Perspective and Poise in Practice.' These words epitomise the whole personality of Dr. Edge, for he possessed these qualities in relation not only to practice but to the art of living itself. Endowed with an unusual facility for friendship, which found no difficulty in bridging a disparity of years amounting often to half a lifetime, the love and veneration in which he was held is no matter for surprise. His passing touches many of us deeply. To these qualities was added a certain flavour of individuality—both in point of view and its expression—which derived perhaps from the mixture of Slav and Saxon temperament in his veins, and added point to his personality, marking him off from the mean of the normal man. His professional life was spent in Birmingham and Wolverhampton. To the latter town (from which these notes have been written) his services were immense. To mention but one point from the many that spring at once to mind: the fusion of two hospitals is rarely accomplished without friction between the numerous personalities involved, but the amalgamation between the Royal Hospital and the Women's Hospital at Wolverhampton was saved from this very largely through the presence of Dr. Edge in our midst. He was made the first chairman of the medical committee of the new hospital, and so rare a power did he show of smoothing difficulties, and of keeping us all not only happy and agreeable but—so rare in such committees—to the point as well, that what had invariably been a yearly tenure was in his case by unanimous desire made into a triennium. Whether in practice, at the bridge table, at the deciding putt on the 18th green, or in the presence of some administrative or other difficulty, Frederick Edge was a connoisseur of life with a zest—and a sagacity—all his own. We shall not easily see his like again."

JOHN POLAND, F.R.C.S. Eng.

WITH the death of Mr. Poland at his home at Seal, Kent, on May 22nd medicine loses a distinguished orthopædist and London a distinguished citizen. Mr. Poland was grandson of a sheriff of London, he was himself a Master Skinner, and one of his sons is City Marshal. Born at Blackheath in 1855, he qualified from Guy's Hospital in 1879, taking the F.R.C.S. Eng. three years later. He was demonstrator of anatomy and surgical registrar at the hospital, going on to the Queen's Hospital for Children where he was registrar and anæsthetist. He attached himself to the Miller General Hospital at a time when it was emerging from the Royal West Kent Dispensary, and became its senior surgeon, holding also similar positions at the Royal National Orthopædic and the City Orthopædic Hospitals. He edited and brought up to date the collected lectures on "Bodily Deformities," delivered at the latter by his predecessor, E. J. Chance, adding two lectures of his own on club-foot, and he was for many years surgical secretary of the Hunterian Society, delivering the Hunterian oration in 1901 and becoming president in 1906. Mr. Poland was 81 years of age. His wife, a daughter of James G. Denham, predeceased him in 1932.

RICHARD THOMAS WILLIAMSON, B.Sc. Vict., M.D., F.R.C.P. Lond.

Dr. R. T. Williamson, who died on April 28th at his home in Surrey, had retired twenty years ago from his position as physician and neurologist in Manchester, and the announcement of his death will recall to the older generation the memory of a wise clinician, a stimulating teacher, and an ardent seeker after truth. Williamson was a Lancashire man by birth and education. He did his schooling at Burnley and Owens College, Manchester, qualifying in 1884 when he was only 22 years old. He was house physician at the Infirmary, went on to demonstrate physiology at Birmingham, and to take a house appointment at the National Hospital, Queen-square. Having there gained a taste for neurology, it remained his primary interest in medicine when he returned to Manchester to work his way up to staff appointments at Ancoats and the Royal Infirmary. His earliest publication, however, was a monograph on diabetes. Dreschfeld, in his lecture course of medicine, left to Williamson the whole department of neurology. In 1908 Williamson published his "Diseases of the Spinal Cord," a book which was illustrated more profusely than almost any medical book of that time, and its success was such that a second edition was called for within a few years. None of his colleagues at the Infirmary used the ophthalmoscope in diagnosis of disease to anything like the extent he did, and he was the first one of them to examine the fundus by direct vision, using an unenclosed candle as his means of illumination. He did a great deal of practical laboratory work, fixing, cutting, staining his own specimens and drawing illustrations from them for use in papers or book. His health was never robust, and in 1917, when 55 years of age, he was obliged to give up his active professional life. Retirement to the south gave him the opportunity



DR. WILLIAMSON

for historical writing, the taste for which dated from a visit to Vienna in his student days. Many stories and short sketches appeared in a New York journal, and in 1927 he embodied some of his own experiences in a book entitled "The Log of an Old Physician."

A colleague writes: "Many students of the Manchester Medical School will have friendly and happy memories of the work they did with R. T. Williamson. He was ever ready to help in the difficult paths of medicine and though his lectures might go beyond the understanding of his audience his bedside help—freely given—was always of the greatest use and benefit. He delighted in tackling a difficult case and in the end his opinion was usually right. Though he was unimpressive on first acquaintance and retained the speech and mannerisms of his native county to the end, his kindliness and his knowledge made a deep impression on those who knew him. Medically his chief interests were in neurology and in diabetes mellitus. In both of these subjects he did keen research work, relying on his own examinations and estimations in all that he did. His published books are full of original observations, pictures, and diagrams. The treatment of diabetes brought him a large practice. Later in life he took a keen interest in school hygiene and after his retirement from practice, when he had settled in Barnes, he turned to history, spending long hours at the British Museum.

"There was much that was tragic in his life. Naturally of an introspective nature he was saddened by two events—the death of his mother, who was killed in a street accident, and that of his wife—who was of Thuringian birth—who died with thrombosis after a minor surgical operation. His later thoughts often turned on the ways these two deaths might have been avoided."

The picture is from a photograph in the Manchester University Medical Library taken before his retirement.

JAMES ADAMS, M.D. Aberd., F.R.C.S. Eng.

THE death at Eastbourne on May 10th of Dr. James Adams removes the elder of two brothers, both of whom qualified from St. Bartholomew's Hospital in the early 'seventies. James was born near Salcombe, Devon, in 1850, and was educated at the University of Aberdeen. After qualification he was resident at the West London Hospital and at the Brooke House Asylum, Clapton, before returning to Devon to practise at Ashburton, where he was surgeon to the local hospital and became chairman of the West Country Association. In 1888 he took the F.R.C.S. Eng. and moved to Eastbourne, where he spent the remaining 50 years of his life. He was attached for many years to St. Mary's Hospital, where he had the reputation of being a specially skilled operator. Many short contributions to our own columns indicate the wide range of his surgical interest. For some time he was deputy medical officer of health. In private life he was a man of social gifts, keen on gardening and skilful at chess, presiding over the Eastbourne Chess Club. His wife predeceased him, and his only son is senior surgeon at Penang. His brother, Mr. John Adams, F.R.C.S., is still living in London.

ROYAL INSTITUTE OF PUBLIC HEALTH AND INSTITUTE OF HYGIENE

Lord Horder presided over the inaugural meeting of the Congress of the Royal Institute of Public Health and the Institute of Hygiene which was opened at Margate on May 25th. In his address on health education, Lord Horder pointed out that the healthiness of the individual was bound up with the art of living and was inseparable from the conduct of life. He emphasised the importance of the formation of sound habits, which must of necessity be first inculcated by the parent. Touching on the relation of medicine, first in its study and then in its application, he maintained that the function of the doctor should be more educative than corrective; healthiness is a positive concept, not merely the absence of disease. Lord Horder summarised the rôle of local authorities and their staffs in combating infectious disease, in protecting foodstuffs, in securing satisfactory shelter for the individual and the provision of fresh air and pure water, all powerful factors in promoting health. Nevertheless he submitted that to aim at extending life was not everything—not even the main thing—the chief problem being how to live more happily. He considered that just as we can organise for defence, we can organise for health and happiness.

While admittedly great strides had been made much more remained to be done. Although adulteration of food was controlled, we had not yet begun to tell the people what foods they required for health. Though occupational disease had been reduced, occupational fitness had also diminished. In a list of conditions calling for remedy he included crowding, fatigue, the conditions of railway travel, and the prevalence of preventable noise; the maternal mortality-rate, the high incidence of tuberculosis in young women, and the appalling ravages of minor illnesses which result in loss of time and wages must also be reduced. He advocated the extension of insurance to the families of the workers and urged the care of the pre-school child, pointing out that preventive medicine was most active when it concerns itself with those matters on which public opinion and attention have already been directed.

At the conclusion of the meeting two presentations were made by Lord Horder. The first was the Harben medal, given by the Institute of Hygiene every third year as a reward for eminent services. The recipient this year was Sir Gowland Hopkins, F.R.S. The other was the Smith award, given triennially by the terms of the trust to the medical officer of health who was deemed to have performed the most noteworthy work in the department of preventive medicine. This (second) award was made to Dr. Charles S. Thomson, medical superintendent officer of health, City of Belfast.

THE LANCET 100 YEARS AGO

May 27th, 1837, *p.* 351.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY

From a contribution made by Dr. J. JOHNSON *to a discussion on nervous affections peculiar to young women, causing contraction of the muscles of the extremities, accompanied by increase, diminution, or absence, of sensation, or motion, held at the Royal Medical and Chirurgical Society on May 23rd*, 1837.—Dr. BRIGHT, *President.*

The cases of Dr. Wilson proved that hysterical affections, particularly in young women, might simulate organic disease occurring in every part, from the head to the foot, even taking on the character of white swelling, loss of vision, &c. He thought the author had acted wisely in advancing no theory on the subject; the idea of the uterus wandering from one part of the body to another, was as good as any that had been adduced.

PARLIAMENTARY INTELLIGENCE

THE House of Commons reassembled on May 24th and the House of Lords on May 25th, after the Whitsuntide Recess.

SPANISH REFUGEE CHILDREN AND TRACHOMA

IN the House of Lords on May 25th Lord LLOYD asked H.M. Government what, if any, arrangements were being made for the segregation of refugee children from Spain. He said that his solicitude in this matter resulted from correspondence which he had had with Dr. Andrew MacCallan, an ophthalmic surgeon who had done so much to relieve blindness right through the Nile Valley, where his name would be long remembered. Dr. MacCallan and the president of the Royal Society of Medicine had written to the Minister of Health pointing out to him how grave was the danger of introducing these Spanish children unless careful examination and segregation were carried out. The fear was that these children might introduce trachoma, a contagious eye disease, which was very obstinate to treat and which led ultimately to blindness. We only rid ourselves of this scourge of trachoma by a rigid application of the Aliens Act of 1920. In its early stages the disease was very hard to detect, except by experts, and it was a disease which was known to ravage the whole of Northern Spain. He saw it reported that the Basque children were not to be kept in one camp but were to be distributed about the country. Owing to our comparative immunity from trachoma it was doubtful whether there were many oculists in this country capable of detecting the disease in its early stages and since the necessary examination was a long and difficult process he wished to know whether the Government were satisfied that the necessary precautions had been taken. He hoped the Government would give an assurance that greater precautions were being taken than any that had yet been referred to in the Press.

The MARQUESS OF DUFFERIN AND AVA, Lord-in-Waiting, replying on behalf of the Home Office, said that all the arrangements for bringing these children to England were made, not by the Government, but by the National Joint Committee on Spanish Relief, a voluntary body which had accepted all financial responsibility for the children. The committee had also accepted the principle that the selection of the children to be evacuated from Bilbao should be made without reference to creed or class or political beliefs. The committee sent out doctors to examine the children before they left Bilbao. He was glad to be able to tell Lord Lloyd that in the opinion of the British medical officers appointed by the committee to go to Bilbao trachoma was very uncommon in the Basque country and the only cases discovered were in children from other parts of Spain. Among all the children who were selected to be evacuated the doctors had found only two cases of this admittedly very dangerous contagious disease, and those two cases were ruthlessly excluded from the ship. The committee had made every effort to make sure that no child should be admitted to England suffering from any contagious or infectious disease. The committee had also taken full responsibility for the care and maintenance of the children in this country, and it was fully understood by the Committee and all responsible for this evacuation that the presence of these children here would be, they hoped, of short duration. The interest of the Government in this matter was limited to securing that practical plans had been made by the committee for the maintenance of these children in institutions and homes, and to making sure that on arrival the children were medically examined. The committee had furnished particulars showing that the majority of the children were already provided for, while plans were being rapidly advanced for the care of the remainder. For the moment the children had been placed in a temporary camp at Southampton, but this camp was not accessible to the general public. Nobody could get in without a special pass and the children were not allowed out without special permission. When the children did leave the camp it would be on the advice of the medical officers in charge and the local health authorities. When that permission had been obtained the children would go in fairly large units to various places where they would be supervised by Basque priests and teachers taking no part in propaganda while they were in England. On arrival the children were all submitted to a medical examination more searching than would have been the examination if they had arrived individually. The medical officers in charge were surprised to find how little their experiences in a beleaguered city had affected the health of the children.

QUESTION TIME

MONDAY, MAY 24TH

Inter-departmental Committee on Abortion

Mrs. TATE asked the Minister of Health whether he was now in a position to give the terms of reference and the personnel of the Inter-departmental Committee on Abortion, the decision to appoint which by the Secretary of State for the Home Department and himself was announced when the recent report on maternal mortality was issued.—Sir KINGSLEY WOOD replied: Yes, Sir. The terms of reference of the committee are: "To inquire into the prevalence of abortion, and the present law relating thereto, and to consider what steps can be taken by more effective enforcement of the law or otherwise to secure the reduction of maternal mortality and morbidity arising from this cause."

The members of the committee will be: Mr. Norman Birkett, K.C. (chairman); Mrs. Stanley Baldwin, Lady Ruth Balfour, M.B., Sir Comyns Berkeley, Mr. H. A. de Montmorency, Dr. T. Watts Eden, Lady Forber, M.D., Sir Rollo Graham-Campbell, Dr. G. C. M. M'Gonigle Sir Ewen Maclean, M.D., Capt. M.P. Pugh, Mr. W. Bentley, Purchase, Mr. C. D. C. Robinson, Mrs. Thurtle, and Lady Williams. Communications relating to the work of the committee should be addressed to the secretary, Committee on Abortion, Ministry of Health, Whitehall, S.W.1.

Tests for the Prison Service

Mr. MONTAGUE asked the Home Secretary if he was aware that a recent candidate for the prison service, F. H. L., of Barnsbury, London, N., who passed a strict medical examination and other scrutinies as to character, was failed at an interview by an assistant commissioner because he failed to remember with absolute certainty the number of halls in Leeds prison through which he passed only about once; and whether, seeing that in view of the prospect of joining the prison service the candidate gave up a good position he had held for ten years and was now unemployed, his application could be reconsidered.—Mr. GEOFFREY LLOYD, Under-Secretary, Home Office, replied: The suggestion that this candidate was rejected merely because he failed to answer a particular question is mistaken. The decision was reached on a review of his qualifications as a whole, after he had been under instruction for some four weeks, and after full consideration of reports by the governor and of others responsible for the instruction of probationers. Like all other candidates who are accepted for training, he was warned beforehand that his engagement was provisional only in the first instance and might be terminated at any time during the training course if he were found to be unsuitable. My right hon. friend regrets that the question of his engagement cannot be reopened. In the selection of candidates for training, every effort is, of course, made to choose only men who appear likely to make good officers, but some men who make a good impression at the original interview are found after a period of trial not to be suitable for the duties.

TUESDAY, MAY 25TH

Officers Invalided Out of the Army

Mr. CHORLTON asked the Secretary of State for War the number of officers invalided out of the Army as a result of accident or sickness during their first 10 years of service in the years 1933, 1934, and 1935 or the latest convenient dates.—Mr. DUFF COOPER replied: The numbers for 1933, 1934, 1935, and 1936 were 6, 6, 4, and 6 respectively.

Housing in Scotland

Mr. BARR asked the Secretary of State for Scotland what was the total number of houses completed in Scotland with State assistance from 1919 till March 31st, 1937, or the last available date; and the total amount of State subsidy paid in respect thereof.—Mr. ELLIOT replied: The total number of houses completed in Scotland with State assistance from 1919 till March 31st, 1937, is 215,537. The total amount of State subsidy paid up to that date is £23,549,148.

Treatment of Tuberculous, Crippled, and Orthopædic Cases

Mr. WILSON asked the Secretary of State for Scotland the annual cost for the treatment of tuberculous, crippled, and orthopædic cases.—Mr. ELLIOT replied: Local authorities in Scotland incurred a net expenditure of £640,670 on the treatment of tuberculosis in the year 1934–35, the latest year for which information is available. Orthopædic and cripple cases are dealt with by local authorities under their tuberculosis, child welfare, and school health schemes, but I regret that a separate figure for this expenditure is not available.

A Factory Code

Mr. RHYS DAVIES asked the Home Secretary whether, in view of the complexity of the Factories Bill, he would issue from his department, when the Bill became law, a Factory Code as a plain guide to the new Act, somewhat similar in character to the Highway Code.—Mr. R. S. HUDSON, Parliamentary Secretary to the Ministry of Health, replied: It will clearly be necessary to issue some kind of explanatory statement. I cannot anticipate now what form it may take, but the hon. Member's suggestion will be borne in mind.

Staffordshire Hospital Arrangements

Mr. MANDER asked the Minister of Health the present position with regard to the Staffordshire county council scheme for dealing with invalids and old persons which came into operation on April 1st in Wednesfield, Willenhall, and other districts; whether a reply from the council to his letter had now been received; and whether there was yet a resident medical officer at the Wordsley institution.—Mr. HUDSON replied: I understand that the position remains as stated in the reply given to the hon. Member's question on this subject on April 8th, and that the county council will not have an opportunity of submitting a report to my right hon. friend until after their next meeting in July. As regards the last part of the question, I am informed that there is now a temporary medical officer resident at the Wordsley institution pending the making of a permanent appointment.

MEDICAL NEWS

University of Oxford

Dr. A. G. Gibson, reader in morbid anatomy in the University, has been constituted Nuffield reader in morbid anatomy while holding the office of honorary pathologist at the Radcliffe Infirmary. He will receive a stipend of £500 a year. Dr. B. G. Maegraith has been appointed university demonstrator in pathology from May 1st, 1937, to Sept. 30th, 1941.

University of London

Mr. John Kirk has been appointed from Oct. 1st to the S. A. Courtauld chair of anatomy tenable at the Middlesex Hospital medical school.

Mr. Kirk is 55 years old. He graduated M.B. at the University of Edinburgh in 1904 and after holding hospital appointments was engaged in medical missionary work in China from 1907 to 1928. In the East he continued his studies in human anatomy, and when the new buildings at the Kung Yee Medical College, Canton, were opened in 1924, he was invited to organise and take charge of the department of anatomy, which was the first of its kind in South China. During the first of his two periods of furlough (1913–14) he was admitted a fellow of the Royal College of Surgeons of Edinburgh and during his second furlough (1921–22) he was a full-time demonstrator in the University of Birmingham. For six years he was a member of the council of medical education of the China Medical Association, was chairman of the Association during the biennium 1927–28, and president from 1925–27; and he acted as chairman of the joint conference of the Chinese Association and the Hong-Kong and South China branch of the British Medical Association held at Hong-Kong in 1925. In 1920 he visited Canada and the United States as a member of a delegation financed by the Rockefeller Foundation for the purpose of reorganising support in these countries for the Canton Hospital as a centre of medical education in South China. He returned to England in 1928 and since then he has been on the staff of University College, London, from 1928–30, as a full-time demonstrator of anatomy and since 1930 as senior demonstrator. For the past six years he has also had charge of the class of anatomy preparing students for the primary F.R.C.S. examination. He is also sub-dean of the faculty of medical science of University College and for the past four years has had the additional duties of senior tutor in the faculties of medicine, science, and engineering.

The title of professor of morbid anatomy in the university has been conferred on Dr. W. D. Newcomb in respect of the post held by him at St. Mary's Hospital medical school.

Society of Medical Officers of Health

Dr. James Fenton, medical officer of health for the Royal Borough of Kensington, has been elected president of this society for the session 1937–38. Dr. Fenton is chairman of the Central Council for Health Education, and is a past-chairman of the Royal Sanitary Institute.

University of Egypt, Cairo

Dr. A. Cecil Alport has been appointed professor of clinical medicine and director of the medical unit of the university.

Dr. Alport graduated in medicine at the University of Edinburgh in 1905 and during the war worked in the 28th and 41st General Hospitals and at the Royal Herbert Hospital, Woolwich. He also acted as specialist in medicine to the latter hospital and as consultant in tropical diseases to the Ministry of Pensions. In 1919 he took his M.D. degree at Edinburgh and in 1920 he became a member of the Royal College of Physicians of London. He was elected to the fellowship this year. Dr. Alport at present holds the position of assistant to the director of the medical unit of St. Mary's Hospital. He published a text-book on nephritis in 1929 and has also written on malaria and splenic anæmia.

Commonwealth Fund Fellowships

Commonwealth fellowships in medicine have been awarded to Dr. D. M. Douglas and Dr. J. D. Spillane. Dr. Douglas intends to work at the University of Minnesota and Dr. Spillane at Columbia University.

International Faculty of Sciences

On May 31st, at 7.30 P.M., at the Gaumont-British Theatre, Film House, Wardour-street, London, W., Dr. S. Monckton Copeman, F.R.S., will give a lecture on experimental work bearing on the treatment of cancer; it will be illustrated with a film and lantern slides. Those who wish to attend should notify the hon. secretary, Hazlitt House, Southampton Buildings, W.C.2.

British Association of Radiologists

The third annual general meeting of this association will be held at the British Institute of Radiology, 32, Welbeck-street, London, W., on Friday, June 11th, and on Saturday, June 12th. On the first day of the meeting Dr. F. Hernaman-Johnson will deliver the Skinner lecture on the after-care of patients suffering from cancer of the breast. A paper on wave-length as a factor in radiotherapy will be read by Mr. G. F. Stebbing, and Prof. J. M. Woodburn Morison and Dr. S. B. Adams will open a discussion on low-voltage near-distance X ray therapy. On the second day the following will speak: Dr. E. Lysholm (radiological experience in ventriculography), Dr. H. W. A. Post (salpingography), Dr. E. Rohan Williams (urography in pregnancy), Dr. H. M. Worth (the use of lipiodol in the localisation of spinal tumours), and Dr. M. H. Jupe (some observations on cases of suprarenal tumour).

Dr. L. W. Dryland and Dr. Josiah Walker have been appointed deputy-lieutenants for the county of Northampton.

London Hospital

On Tuesday, July 6th, at 3 P.M., Sir Kingsley Wood, the Minister of Health, will distribute the prizes to students of this hospital in the college library.

Tuberculosis Association

The annual provincial meeting of the Tuberculosis Association will be held at the Central Library, Manchester, on June 10th, 11th, and 12th, under the presidency of Dr. S. Roodhouse Gloyne.

Royal Eye Hospital

The clinical society of this hospital will hold a meeting on Wednesday, June 2nd, at 5.30 P.M., at which a number of cases will be shown and discussed. All medical practitioners are invited, and further particulars may be had from the hon. secretary at the hospital, St. George's-circus, London, S.E.

Demonstrations of Contraceptive Technique

On Wednesday, June 2nd, at 2.30 P.M., a practical demonstration of the technique of the use of a variety of contraceptive methods will be given by Mrs. Marie Stopes, D.Sc., and Dr. Evelyn Fisher. Medical practitioners and senior students should apply for tickets to the hon. secretary of the Society for Constructive Birth Control, 108, Whitfield-street, London, W.1.

Society for the Provision of Birth Control Clinics

A lecture on the theory and practice of contraception will be given to medical practitioners and medical students by Dr. Greta Graff on Friday, June 11th, at 6 P.M., at the Walworth Women's Welfare Centre, 153A, East-street, London, S.E. Practical demonstrations will be given on Friday, June 18th, at 6 P.M. and at 7 P.M. Further information may be had from the secretary at the clinic.

Wellcome Chemical Works, Dartford

Mr. Sydney Smith, Ph.D., has been appointed works manager at the Dartford works of Messrs. Burroughs Wellcome and Co in succession to Mr. H. A. D. Jowett, D.Sc., who met his death in a car accident last August. Dr. Smith has been associated with Messrs. Burroughs Wellcome and Co. for 23 years and has made many contributions to the study of the alkaloids of ergot and the glucosides of digitalis.

Fellowship of Medicine and Post-Graduate Medical Association

The following all-day courses will be held during the summer months: gynæcology, Chelsea Hospital for Women (June 14th to 26th); proctology, St. Mark's Hospital (July 5th to 10th); dermatology, Blackfriars Skin Hospital (July 12th to 24th, afternoons only); urology, All Saints' Hospital (July 12th to 31st). Week-end courses will be held as follows: obstetrics, City of London Maternity Hospital (June 12th and 13th); general surgery, Prince of Wales General Hospital (June 19th and 20th); diseases of heart and lungs, Victoria Park Hospital (July 3rd and 4th); medicine and surgery, Miller General Hospital (July 10th and 11th). Courses to be held in preparation for the M.R.C.P. examination are: clinical and pathological course at the National Temperance Hospital (8 P.M. Tuesdays and Thursdays, June 1st to 17th); course in chest diseases at the Brompton Hospital (twice weekly, 5 P.M., June 7th to July 13th); course in diseases of the heart and lungs, Victoria Park Hospital (Wednesdays and Fridays, 6 P.M., June 9th to July 3rd); course in neurology, West End Hospital for Nervous Diseases (afternoons, June 21st to July 3rd); fundus oculi demonstration, 8.30 P.M., July 6th; pulmonary tuberculosis demonstration at Preston Hall, July 3rd. Full particulars of all courses and demonstrations can be had from the secretary of the fellowship at 1, Wimpole-street, London, W.

THE address of the Institute for the Scientific Treatment of Delinquency has been changed from 56, Grosvenor-street to 8, Portman-street, London, W.1.

Memorial to Young and Noguchi

The government of the Gold Coast is erecting a memorial to William Alexander Young and Hideyo Noguchi who died from yellow fever in 1928 while working at the Medical Research Institute at Accra where Young was the director. In their memory a bronze tablet will shortly be placed in a room at the Institute and a small drinking-fountain in front of the out-patient block of the Gold Coast Hospital.

International Union against Tuberculosis

The executive committee of the union has placed at the disposal of the governments and associations belonging to the union a biennial prize of a value of 2500 French francs, in memory of the late Prof. Léon Bernard, who was founder, and, for fourteen years, the secretary-general of the union. The prize will be awarded for the first time in 1938 to the author of an original essay on the social aspect of tuberculosis, in French or in English. The essays must be typewritten or printed and must not exceed 10,000 words. They must be forwarded by a government or an association belonging to the union to the secretariat, 66, Boulevard Saint-Michel, Paris (VIe), not later than May 1st, 1938.

International Union against Cancer

Twenty-one different countries sent delegates to a meeting of the general committee of the International Union against Cancer which took place in London over the week-end. They were entertained to luncheon on Saturday by the executive committee of the British Empire Cancer Campaign, and on Saturday evening they were invited by His Majesty's Government to a dinner at Lancaster House, at which Sir Kingsley Wood, presided. The chief business discussed by the delegates was the programme for the next international cancer congress, which it was decided should be held in Atlantic City in September, 1939. The two official British representatives on the general committee are Dr. W. Cramer and Mr. Cecil Rowntree, from whom any further information can be had.

Society for Relief of Widows and Orphans of Medical Men

The annual general meeting of this society was held on May 19th, with Mr. V. Warren Low, the president, in the chair. During 1936 21 new members were elected, 9 died, and 1 resigned; the membership on Dec. 31st was 275. The total income for the year was £5392 and £5275 was distributed in relief to the 59 widows and 9 orphans in receipt of grants. This is an increase of £1000 over the previous year. Special grants, amounting to £217 10s., were made from the Brickwell fund to orphans, to enable them to study for some business or professional careers. The president announced that in 1938 the society would be celebrating the 150th anniversary of its foundation. Membership of the society is limited to registered medical men who at the time of their election reside within twenty miles of Charing Cross. Further information may be had from the offices of the society, 11, Chandos-street, London, W.1.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Sen. Cas. O. for Out-patient Dept. £200.
Altrincham General Hosp.—Sen. and Jun. H.S., at rate of £150 and £120 respectively.
Aylesbury, Royal Buckinghamshire Hosp.—Sen. Res. M.O., at rate of £200.
Barnsley, Beckett Hosp. and Dispensary.—H.P., £200.
Battersea General Hosp., Battersea Park, S.W.—Hon. Radiologist.
Belfast Royal Maternity Hosp.—Res. M.O., at rate of £52.
Birmingham, Dudley-road Hosp.—Jun. M.O., at rate of £200.
Birmingham General Hosp.—Res. Surg. Reg., £100–£120.
Blackburn County Borough.—Asst. School M.O. and Asst. M.O.H., £600.
Blackburn Royal Infirmary.—Res. H.S., £175.
Bradford Children's Hosp.—H.S., £150.
Bradford Royal Infirmary.—Hon. Asst. Physician.
Brighton, Royal Sussex County Hosp.—Office of Hon. M.O., Dept. for Treatment of Early Nervous Disorders. Hon. Surg. Reg. H.P., £150. Also Cas. H.S., £120.
British Postgraduate Medical School, W.—Three H.S.'s to Surgical Unit, at rate of £105.

Burnley Municipal General Hosp.—Jun. Res. M.O., at rate of £160–£200.
Cardiff, King Edward VII Welsh National Memorial Assn.—Asst. Res. M.O.'s for Spec. Hospitals, each £200.
Central London Throat, Nose, and Ear Hosp., Gray's Inn-road, W.C.—Hon. Assts. to Out-patient Dept.
Central Middlesex County Hosp., Willesden.—Visiting Ear, Nose, and Throat Surgeon, 3 guineas per session. Two Res. Asst. M.O.'s, each £400. Also Res. Cas. M.O., £350.
Children's Hosp., 30, College-crescent, Hampstead, N.W.—Res. M.O., at rate of £150.
City of London Hosp. for Diseases of the Heart, &c., Victoria Park, E.—H.P., at rate of £100.
City of London Maternity Hosp., City-road, E.C.—Asst. Res. M.O., at rate of £80.
Connaught Hosp., Oxford-road, E.—Sen. Res. M.O., at rate of £175. Also H.P., H.S., and Cas. O., each at rate of £110.
Coventry and Warwickshire Hosp.—Res. H.S., Cas O., and Res. H.S. to Aural and Ophth. Depts., each £150.
Coventry, City of.—Asst. M.O. (Woman), £500.
Croydon Mental Hosp., Upper Warlingham.—Asst. M.O., £400.
Derbyshire Hosp. for Sick Children.—Res. H.S., at rate of £130.
Derbyshire Royal Infirmary.—Cas. O. and Orthopædic H.S., £150.
Dreadnought Hosp., Greenwich, S.E.—Receiving Room Officer, at rate of £200. Also H.P. and H.S., each at rate of £110.
Dudley, Guest Hosp.—Second H.S., £120.
Gloucestershire Royal Infirmary.—H.S., at rate of £150.
Gloucestershire Royal Infirmary and Eye Institution.—H.P., at rate of £150.
Golden-square Throat, Nose, and Ear Hosp., W.—House Anæsthetist and H.S., £150 and £100 respectively.
Guildford, Royal Surrey County Hosp.—H.S., at rate of £150.
Halifax Royal Infirmary.—Third H.S., at rate of £150.
Hampstead General and North-West London Hosp., Haverstock-hill, N.W.—Cas. Surg. O. for Out-patient Dept., at rate of £100.
Hawkmoor Sanatorium, near Bovey Tracey.—Res. Asst. M.O., at rate of £250.
H.M. Colonial Medical Service.—Vacancies for M.O.'s, £600–£700.
Holland (Lincolnshire) County Council.—Asst. M.O.H., £600.
Hosp. for Tropical Diseases, Gordon-street, W.C.—H.P., at rate of £120.
Hosp. of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Ophth. Surgeon.
Huddersfield, St. Luke's Hosp.—Res. M.O., £200.
Hull Royal Infirmary.—H.S. to Ophth. and Ear, Nose, and Throat Dept. Second H.P. and Second Cas. O., each at rate of £150.
Institute for the Scientific Treatment of Delinquency, Portman-street, W.—Med. Reg., £300.
Ipswich, East Suffolk and Ipswich Hosp.—Cas. O., H.S. to Orthopædic and Fracture Dept. Also H.S. to General Surg. and Genito-Urinary Surgeon, each £144.
Kettering and District General Hosp.—Res. M.O. and Second Res. M.O., £160 and £140 respectively.
Kingston and District Hosp.—Res. Asst. M.O., at rate of £375.
Lancashire County Council.—Asst. County M.O.H., £800.
Leeds, Menston Mental Hosp.—Asst. M.O., £350.
Leicester City Isolation Hosp. and Sanatorium.—Res. M.O., at rate of £300.
Leicester Royal Infirmary.—Res. Radiologist, at rate of £200.
Liverpool University.—Research Asst. in Dept. of Medicine, £600. Also Demonstratorship in Anæsthesia, Part-time, £100.
London County Council.—Asst. M.O.'s (Grade I), each £350. Also Asst. M.O.'s (Grade II), each £250.
London Jewish Hosp., Stepney Green, E.—Res. Cas. O., £100.
Manchester, Ancoats Hosp.—Res. Surg. O., £200.
Manchester and Salford Hosp. for Skin Diseases.—H.S., at rate of £150.
Manchester, Booth Hall Hosp. for Children.—Res. Surg. O., £400.
Manchester Ear Hosp., Grosvenor-square.—Res. H.S., £120.
Manchester, St. Mary's Hosps.—H.S.'s, each at rate of £50.
Manchester, Victoria Memorial Jewish Hosp., Cheetham.—Jun. H.S. and Res. M.O., at rate of £125 and £150 respectively.
Marie Curie Hosp., 2, Fitzjohn's-avenue, N.W.—Res. M.O.
Ministry of Health, Whitehall.—Staff M.O.'s, £847.
National Temperance Hosp., Hampstead-road, N.W.—Cas. O., at rate of £120.
Newcastle-upon-Tyne, Barrasford Sanatorium.—Res. Med. Asst., £250.
Newport, Mon., Royal Gwent Hosp.—Two H.S.'s, each at rate of £135.
Norwich, Jenny Lind Hosp. for Children.—Res. M.O., £120.
Norwich, Norfolk and Norwich Hosp.—Two General H.S.'s, each £120.
Nottingham County Council.—H.S. for City Hosp., at rate of £250.
Nottingham General Hosp.—H.S. for Ear, Nose, and Throat Dept., at rate of £150.
Oldham Royal Infirmary.—H.S. Also Cas. O. and H.S. to Fracture Dept., each at rate of £175.
Oxford, Brazenose College.—Hulme Lectureship in Physiology, £350.
Oxford, Wingfield-Morris Orthopædic Hosp., Headington.—Lord Nuffield Scholarship in Orthopædic Surgery, £200.
Plymouth, City General Hosp.—Jun. Asst. M.O., at rate of £250.
Plymouth, Prince of Wales's Hosp., Greenbank-road.—H.P. and H.S., each at rate of £120.
Pontefract General Infirmary.—Jun. Res. M.O., at rate of £150.
Preston and County of Lancaster Royal Infirmary.—Res. H.S. and H.S., each £150.
Preston County Borough.—Asst. School M.O., £500.
Princess Elizabeth of York Hosp. for Children, Shadwell, E.—H.P., H.S., and Cas. O., each at rate of £125.
Princess Louise Kensington Hosp. for Children, St. Quintin-avenue, W.—H.S., at rate of £120.
Queen Charlotte's Maternity Hosp., Marylebone-road, N.W.—Hon. Gen. Surgeon. Also Obstet. Surgeon to In-patients.
Queen Mary's Hosp. for the East End, Stratford, E.—Clin. Asst. to Skin Dept.
Queen's Hosp. for Children, Hackney-road, E.—H.P. and Cas. O., each at rate of £100.
Reading, Royal Berkshire Hosp.—Cas.O., at rate of £150.
Rochester, St. Bartholomew's Hosp.—H.P., at rate of £150.
Rotherham Hosp.—Cas. H.S., £150. Also H.S. for Ophth. and Ear, Nose, and Throat Depts., £120.
Royal Air Force Medical Service.—Commissions.
Royal London Ophthalmic Hosp., City-road, E.C.—Out-patient Officer, £100.
Royal Naval Medical Service.—M.O.'s.
Salford Royal Hosp.—Two H.S.'s, each at rate of £125.
St. John's Hosp., Lewisham, S.E.—Orthopædic Registrar.
St. Mark's Hosp. for Cancer, &c., City-road, E.C.—H.S., at rate of £65.
St. Peter's Hosp. for Stone, &c., Henrietta-street, W.C.—Clin. Assts. to the Hon. Staff.
St. Thomas's Hosp., S.E.—Physician.
Sheffield Children's Hosp.—H.S., £100.
Sheffield, Jessop Hosp. for Women.—Asst. in Hosp. Labs., £300. Res. M.O. and Sen. Res. O., each at rate of £150. Also Three H.S.'s, each at rate of £100.
Sheffield Royal Infirmary.—Ophth. H.S., at rate of £120. Also H.S. and Aural H.S., each at rate of £80.
Southampton, Royal South Hants and Southampton Hosp.—H.P., Cas. O., and Res. Anæsthetist and H.S. to Ear, Nose, and Throat Dept., at rate of £150.
South London Hosp. for Women, Clapham Common, S.W.—H.P. and H.S., each at rate of £100.
Stafford, Prestwood Sanatorium.—Jun. Asst. M.O., at rate of £300.
Stockport, Stepping Hill Hosp.—Res. Asst. M.O., at rate of £200.
Stoke-on-Trent, Burslem, Haywood, and Tunstall War Memorial Hosp.—Res. H.S., at rate of £175.
Stoke-on-Trent, Longton Hosp.—H.S., £160.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. for Aural and Ophth. Dept., £150.
Sunderland Royal Infirmary.—H.S., £120.
Surrey County Council.—Jun. Asst. M.O. for County Sanatorium, at rate of £350.
Surrey County Hosp., Redhill.—Res. Asst. M.O., at rate of £375.
Sutton and Cheam Hosp.—Second Ophth. Surgeon. Also Physician-in-Charge of Physio-Therapeutic Dept.
Swansea County Borough Mental Hosp.—Asst. M.O., £400.
Swansea General and Eye Hosp.—H.S., at rate of £150.
Taunton, Somerset and Bath Mental Hosp.—Res. Second Asst. M.O., £350.
Tilbury Hosp., Essex.—H.S., at rate of £140.
Tunbridge Wells, Kent and Sussex Hosp.—H.S. to Ear, Nose, and Throat Dept., £150.
Warrington Borough General Hosp.—Part-time Visiting M.O., at rate of £300.
Weir Hosp., Grove-road, Balham, S.W.—Jun. Res. M.O., £150.
West London Hosp., Hammersmith-road, W.—Jun. Asst. M.O. for V.D. Dept., £350. Also H.P. and Two H.S.'s, each at rate of £100.
Winchester, Royal Hampshire County Hosp.—H.P., at rate of £125.
Windsor, King Edward VII Hosp.—Two H.S.'s and Cas. O., each £100.
Worcestershire Mental Hosp., Barnsley Hall.—Deputy Med. Supt., £450.
Worksop Victoria Hosp.—Jun. Res., £130.
York, Bootham Park Mental Hosp.—Med. Supt., £800.
York County Hosp.—Second H.S. and Res. Anæsthetist, £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Invergordon (Ross), South Cave (Yorks, E.R.), Whitland (Carmarthen), Newton-le-Willows (Lancs.), Lydbrook (Glos.), Milborne Port (Somerset), Holborn and St. Pancras (London).

Births, Marriages, and Deaths

BIRTHS

ACRES.—On May 9th, at the Baptist Mission, Bolobo, Belgian Congo, the wife of Dr. Ian Acres, of a son.
BEACH.—On May 17th, at Oxford, the wife of Surg. Lieut.-Comdr. W. V. Beach, R.N., of a daughter.
COVE-SMITH.—On May 22nd, the wife of Dr. R. Cove-Smith, of Stanhope-place, W., of a daughter.
KAY.—On May 21st, at Mill Hill, the wife of Dr. James Kay, Elstree, of a daughter.
MCDOWALL.—On May 22nd, at Emsworth, Hants, the wife of Dr. Edward Benson McDowall, of a son.
OWEN.—On May 14th, the wife of Mr. C. Langley Owen, F.R.C.S., of Ross-on-Wye, of a daughter.
PEGGE.—On May 16th, the wife of Dr. George Pegge, of Chepstow-place, W., of a daughter.
STEADMAN.—On May 16th, at Devonshire-place, W., the wife of Dr. Brian St. J. Steadman, of a son.
WASS.—On May 17th, at Church-crescent, N., the wife of Mr. S. H. Wass, F.R.C.S., of a son.

DEATHS

MARTIN.—On May 21st, at Churchill, near Bristol, Theodore Martin, M.R.C.S., in his 82nd year.
MAY.—On May 18th, at Bath, Colonel William Allan May, C.B., R.A.M.C. (retd.), aged 86.
POLAND.—On May 22nd, at Seal, near Sevenoaks, John Poland, F.R.C.S. Eng.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

LEGAL, CLINICAL, AND COMMERCIAL ASPECTS OF BIRTH CONTROL

AN important Bill concerned with contraception and abortion became effective in Iceland in January, 1935.[1] Its provisions are remarkable because they impose upon doctors an actual obligation to give advice on contraception in certain conditions; also because they regard the woman's economic circumstances as forming part of the therapeutic indications for terminating pregnancy. The first sentence of the first section reads as follows:—

"If a woman consults a doctor and suffers from a disease the nature of which is such that the doctor would deem it dangerous to the woman to become pregnant or to bear a child, it shall be his duty to warn her in this matter and to direct her how to prevent conception. . . . The physician shall be bound to give her the information required, but no one who is not a physician shall be allowed to give such directions. The Minister of Health shall publish and the Chief Medical Officer shall distribute among physicians 'Directions for women how to prevent pregnancy'."

Section 9 ends with the following paragraph:—

"When estimating how far childbirth may be likely to damage the health of a pregnant woman, as mentioned under sub-section 1 hereof, it may among other things be taken into consideration whether the woman has already borne many children at short intervals and a short time has passed since her last confinement, also whether her domestic conditions are difficult, either on account of a large flock of children, poverty or serious ill-health of other members of the family."

CONTRACEPTIVE SUCCESS AND FAILURE

Reports on the data at birth control clinics have been accumulating in the last fifteen years and a valuable precedent as to how they should be presented was set four years ago by Dr. Hannah Stone.[2] The information collected has social and medical aspects, and the scientific reports should therefore give consideration to the economic status of the woman as measured by her husband's occupation and earnings, to her age and religious affiliation, to her previous reproductive history and her previous use of contraception. It is always found that the clinics lose touch with a proportion of patients and the exact number should be stated; the earlier in the clinic's history a patient is seen, the greater is the chance of the clinic losing touch. Of the women with whom the clinic maintains touch, some discontinue the method, either because it is not needed (in cases of sterilisation, menopause death of or separation from husband), or because the method is found unacceptable. The number in each of these categories should be given. Finally, a proportion of women use the method successfully; and another proportion experience failures—i.e., they have unwanted pregnancies when using the method advised by the clinic—which have been classified in various ways.

A report on 4000 cases by Dr. Ruth Robishaw[3] of Cleveland, Ohio, covers the six-year period 1928–34, and gives much valuable information; but it is not clear on all these points. The reader is left to deduce that, of the patients seen during this period, the clinic maintained touch with 2083—just over half the total; as is to be expected, the proportion of women seen each year with whom the clinic maintained touch increased steadily from 1928 to 1933. Thus, by 1934, it had retained contact with only 16 per cent. of the cases seen in 1928; whereas it maintained touch with 96 per cent. of those seen in 1933. But particulars of all 4000 women are given by Dr. Robishaw in her report, so it is to be presumed that, in 1917 cases, the records of the women's experiences stop short when contact with them was lost, and thus do not cover the whole interval which elapsed between the date of their first attending the clinic and the year 1934 when the six-year period ended.

In 3514 of the recorded cases the method advised was a combination of a diaphragm pessary and a lactic acid jelly. In the remaining 486 patients, 12 other methods were advised. Of the total of 4000 women, 1760 successfully used the method which had been advised; 1353 discarded it because they found it unsatisfactory; and 151 gave it up for reasons that had no connexion with its merits or demerits. One hundred and twelve women were pregnant before they began to use the method. Of 357 women who became pregnant after it had been used, 331 experienced unwanted pregnancies; only 26 pregnancies appear to have been planned. The smallness of this proportion is remarkable in view of the fact that the average age of the women was between 25 and 30 and of the fact that, in this country at least, birth control clinics are used largely by women who want to space their children. Of the failures, 41 were unaccountable—i.e., were not attributed to defects in the appliances provided or to omissions of part of the procedure. The unaccountable-failure rate of 1 per cent. over a period of about two years accords closely with the findings of previous investigations in America and in this country. Assuming a coitus-rate of once a week, the risk of failure at each act works out at 1 in about 4000, provided that the method is properly carried out.

THE COMMERCIAL SIDE

In an account of the birth control industry in America Harrison Reeves[4] gives some striking figures. It is said that 5,000,000 sheaths are sold daily and that 275 million dollars a year are spent upon them. But in addition to this, 300,000,000 dollars are annually spent on other contraceptive appliances such as jellies, suppositories, caps, rings, and compounded prescriptions. The birth-control industry, while not yet comparable in volume to the petroleum industry or to the industry in cosmetics and beauty appliances, is one upon which is being increasingly focused the principles of scientific salesmanship. Thus we are told that the use of slot-machines in garages and public lavatories, and of placards for advertisement, are being discouraged; but schemes are favoured for installing vending machines on battleships, in army barracks, in police headquarters, and in country clubs. "Successful installations of this sort," says Mr. Reeves, "would give class to the business, speed word-of-mouth advertising and break down one barrier after another." Since the author does not quote the sources from which his computations are drawn, his figures should be accepted with caution; but they suggest the desirability of obtaining accurate data in this country with regard to a trade that now has a noteworthy sociological influence.

THE NUTRITIONAL POLICY OF THE LEAGUE OF NATIONS

AT the twenty-fifth session of the Health Committee of the League of Nations, held at Geneva during the last days of April, a programme was discussed and approved for the next three years. Consideration was given to the report of the Technical Commission of Nutrition set up in 1935, which held its first session in London in November of that year (see *Lancet*, 1935, **2**, 1434). This report has, it seems, created an impression not only in Europe but also overseas; thus the agenda of the Intergovernmental Conference on Rural Hygiene in the Far East includes items

[1] Hodann, M., *Marriage Hygiene, Bombay*. November, 1936 (English translation of the Act).

[2] Stone, H. M., and Hart, H., Medical Health and Contraception: a Study of the Social and Medical Data of 2000 Patients. The social data were published by the New Jersey Birth Control League; the medical data (by Stone) in the *Medical Journal and Record*, April 19th and May 3rd, 1933.

[3] Robishaw, R. A. (1936) *Amer. J. Obstet. Gynec.* **31**, 426.

[4] Reeves, H., *American Mercury*, October, 1936.

such as the composition of dietaries, the nutritive value of the principal foods, deficiency diseases and their method of investigation, all of them inspired by the Commission's report. In Chile a study of popular nutrition by Profs. Dragoni and Burnet is now in the hands of the government. Nutritional problems will also figure prominently in the agenda of the Conference on Rural Hygiene in American Countries and in that of the European Conference on Rural Life, both of which, it is presumed, will be held during the mandate of the present Health Committee. It was felt at this session that the procedure adopted for the study of nutrition has produced valuable results in a comparatively short space of time and, having thus proved its worth, is not in need of modification at present. The report of the Technical Commission will thus remain the pivot of activity.

LE PLAY SOCIETY.—Sir John Russell, F.R.S., of the Rothamsted Institute, Harpenden, is to lead a group of members and friends of this society to Soviet Russia in August. The visit will afford an opportunity for seeing something of what is being done in the application of science to everyday problems in Russia, particularly in regard to farming. The general geographical features of the country, its geology, vegetation, and various social experiments will also be studied. This group will leave London on August 6th and will go via the Black Sea to Erivan in Soviet Armenia, returning via Moscow and Leningrad by boat to London. Finnish Lapland is to be visited by another Le Play group, who will stay for a short time on the Arctic coast. For geographers, botanists, and geologists, this presents a particularly interesting area for vacation study. The party will leave London on August 4th. Similar arrangements are being made for visits to Yugoslavia (Old Serbia), where there will be special interests for the geologist and the botanist; to Czechoslovakia; to the Dalmatian coast; and to the Outer Hebrides. Full details of these vacation visits can be had from Miss Margaret Tatton, director of the society, 58, Gordon-square, London, W.C.1.

CORRIGENDUM.—In the article on the Action of Trypsin on Diphtheria Toxin by Brandwijk and Tasman in our last issue, p. 1228, the reference in line 7 should be to various strains of *typhoid* bacteria.

Appointments

BROWN, D. G. W., M.Ch. Orth. Liverp., F.R.C.S. Edin., Orthopædic Surgeon to the Royal Infirmary, Sunderland.

GIBSON, ROBERT, M.B. Glasg., Assistant Medical Officer at the Bristol Mental Hospital, Fishponds.

GORDON, W. H., M.B. Glasg., D.O.M.S., Refractionist to the Queen Mary's Hospital for the East End.

HALDANE, F. P., M.B. Glasg., Assistant Physician to Runwell Hospital for Nervous and Mental Disorders, Wickford, Essex.

HOPE, EDITH, M.R.C.S. Eng., D.M.R.E., Radiologist in Charge of Diagnostic Work at the Elizabeth Garrett Anderson Hospital.

HOSFORD, JOHN, M.S. Lond., F.R.C.S. Eng., Consulting Surgeon to the Bethlem Royal Hospital, London.

HULBERT, N. G., M.B. Camb., M.R.C.P. Lond., Medical Registrar to the Royal Chest Hospital, London.

JOHNSON, J. F. E., M.B. Manch., Assistant Medical Officer at Wooley Sanatorium, Northumberland.

LEDERMAN, M.B. Lond., Resident Medical Officer at the Radium Institute, London.

MCCARTHY, RITA, L.R.C.P. Irel., Clinical Assistant to the Ophthalmic Department, Sheffield Royal Hospital.

MILLS, J. P. TYNAN, L.R.C.P. Edin., Temporary Assistant School Medical Officer and Assistant Medical Officer of Health for Exeter.

PRICE, MARGARET R., L.R.C.P. Lond., D.C.H., First Assistant in the Children's Department of the Royal Free Hospital.

SAVEGE, RONALD, M.B. Aberd., F.R.C.S. Edin., D.L.O., Hon. Assistant Surgeon to the Ear, Nose, and Throat Department of the Croydon General Hospital.

SMITH, C. M., M.D. Glasg., D.P.H., County Medical Officer of Health and Chief School Medical Officer for Northamptonshire.

THOMAS, A. R., B.Chir. Camb., D.M.R.E., Radiologist to the Bethlem Royal Hospital, London.

City Infectious Diseases Hospitals, Liverpool.—The following appointments are announced:

HURST, MARY M., M.B. Liverp., Assistant Resident Medical Officer;

DODD, ARCHIBALD, M.B. Liverp., Assistant Resident Medical Officer; and

CONCANNON, A. B., M.B. Liverp., Assistant Resident Medical Officer.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
WEDNESDAY, June 2nd.
Surgery. 2.30 P.M. Summer meeting at the British Postgraduate Medical School, Hammersmith Hospital, Ducane-road, W.

BIOCHEMICAL SOCIETY.
FRIDAY, June 4th.—2.30 P.M. (Institute of Physiology, the University, Glasgow), communications and demonstrations.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.
TUESDAY, June 1st.—5 P.M., Dr. Edwin Bramwell: Clinical Reflections upon Muscles, Movements, and the Motor Path. (Last Croonian lecture.)

MATERNITY AND CHILD WELFARE CONFERENCE.
TUESDAY, June 1st, WEDNESDAY, and THURSDAY.—English-speaking Conference on Maternity and Child Welfare at B.M.A. House, Tavistock-square, W.C.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
TUESDAY, June 1st.—4.30 P.M., Dr. D. Hunter: Occupational Diseases.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2.30 P.M., Prof. M. Greenwood, F.R.S.: Experimental Epidemiology. 3 P.M., clinical and pathological conference (surgical).
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3 P.M., operative obstetrics. 3.30 P.M., Mr. A. K. Henry: Demonstrations of the Cadaver of Surgical Exposures.
FRIDAY.—2.30 P.M., Mr. Russell Howard: Diseases of the Breast. 3 P.M., clinical and pathological conference (obstetrics and gynæcology).
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations. Refresher course for general practitioners.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, May 31st.—10 A.M., Dr. Post: X ray film demonstration, skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.
TUESDAY, June 1st.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. B. Coden: Choice of Anæsthesia.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Dr. Redvers Ironside: Subarachnoid Hæmorrhage.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., Mr. Simmonds: surgical lecture.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Owen: Artificial Feeding in Infants.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, May 31st, to SUNDAY, June 6th.—ST. PETER'S HOSPITAL, Henrietta-street, W.C., all-day advanced course in urology.—PRINCE OF WALES GENERAL HOSPITAL, Tottenham, N., Sat. and Sun., course in general medicine.

ST. MARY'S HOSPITAL, W.
TUESDAY, June 1st.—5 P.M. (Institute of Pathology and Research), Mr. F. T. Ridley: The Intraocular Pressure.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, June 3rd.—2 P.M., Dr. E. A. Cockayne: Jaundice. 3 P.M., Mr. Charles Donald: Goitre in Children.
Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.
MONDAY, May 31st.—5 P.M., Dr. G. B. Dowling: Occupational Dermatitis.
TUESDAY, June 1st.—5 P.M., Dr. H. W. Barber: Lichen Planus.
THURSDAY.—5 P.M., Dr. Hugh Gordon: Treatment of Acne.
FRIDAY.—5 P.M., Dr. J. E. M. Wigley: Napkin Area Eruptions.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, S.W.
WEDNESDAY, June 2nd.—4 P.M., Dr. C. E. Lakin: Demonstration of Medical Cases.

MANCHESTER ROYAL INFIRMARY.
FRIDAY, June 4th.—4.15 P.M., Dr. P. B. Mumford: Demonstration of Skin Cases.